

## ORIGINAL ARTICLE

# Prevalence and Patterns of Hazardous and Harmful Alcohol Consumption Assessed Using the AUDIT among Bhutanese Refugees in Nepal

Nagendra P. Luitel<sup>1,\*</sup>, Mark Jordans<sup>2,3</sup>, Adrianna Murphy<sup>4</sup>, Bayard Roberts<sup>4</sup> and Jim McCambridge<sup>4</sup>

<sup>1</sup>Transcultural Psychosocial Organization (TPO) Nepal, Baluwatar, Kathmandu, Nepal, <sup>2</sup>Department of Research & Development, HealthNet TPO, Lizzy Ansinghstraat 163, Amsterdam 1073 RG, The Netherlands, <sup>3</sup>Center for Global Mental Health, London School of Hygiene and Tropical Medicine, Keppel St, London WC1E 7HT, UK and <sup>4</sup>Faculty of Public Health & Policy, London School of Hygiene and Tropical Medicine, 15-17 Tavistock Place, London WC1H 9SH, UK

\*Corresponding author: Tel.: +977-1-4431717/977-9841333725; E-mail: luiteln@gmail.com

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**Abstract** — **Aims:** This study sought to ascertain the prevalence of hazardous and harmful alcohol consumption among Bhutanese refugees in Nepal and to identify predictors of elevated risk in order to better understand intervention need. **Methods:** Hazardous and harmful alcohol consumption was assessed using the Alcohol Use Disorder Identification Test (AUDIT) administered in a face-to-face interview in a census of two camps comprising ~8000 refugees. **Results:** Approximately 1/5 men and 1/14 women drank alcohol and prevalence of hazardous drinking among current drinkers was high and comparable to that seen in Western countries with longstanding alcohol cultures. Harmful drinking was particularly associated with the use of other substances including tobacco. **Conclusions:** Assessment of the alcohol-related needs of Bhutanese refugees has permitted the design of interventions. This study adds to the small international literature on substance use in forced migration populations, about which there is growing concern.

## INTRODUCTION

Concerns have been expressed about hazardous and harmful alcohol use amongst populations who have been forcibly displaced from their homes by armed conflict, human rights abuses and persecution (Johnson, 1996; de Jong, 2002; UNHCR and WHO, 2008). These forcibly displaced persons include around 26.4 million internally displaced persons (IDPs) who have fled their homes but remain within their own country, 10.4 million refugees who have crossed into another country, and 876,000 asylum seekers who have applied for refugee status (IDMC, 2012; UNHCR, 2012). Forced displacement is usually protracted, with most people affected living in these situations for >5 years, and often for decades. Policies and programmes thus need to embrace both short-term humanitarian relief and longer-term developmental concerns (Loescher and Milner, 2009).

Forcibly displaced people can be exposed to high levels of violent and traumatic events related to armed conflict and displacement (Ingleby, 2005; Porter and Haslam, 2005; Steel *et al.*, 2009). It commonly also leads to worse living conditions; impoverishment and the loss of family; friends; assets; livelihoods and self-esteem and cultural and social support (Miller and Rasco, 2004; Porter and Haslam, 2005). Alcohol use may act as a coping strategy in response to such exposure to traumatic events and social stressors (Rhodes and Jason, 1990; Johnson, 1996; Kozaric-Kovacic *et al.*, 2000; Marshall *et al.*, 2005; Galea *et al.*, 2007; Roberts *et al.*, 2011).

Perhaps unsurprisingly, there are strong associations of traumatic experiences and daily stressors with mental health problems such as post-traumatic stress disorder (PTSD) and depression and anxiety (de Jong *et al.*, 2003; Miller and Rasco, 2004; Porter and Haslam, 2005; Steel *et al.*, 2009). These are also associated with hazardous and harmful alcohol use, which has been viewed by some as a form of self-medicating the physiological, behavioural, affective and cognitive symptoms of these problems (Stewart, 1996;

Kessler *et al.*, 1997; Chilcoat and Breslau, 1998; Breslau *et al.*, 2003; Sacco *et al.*, 2009; Kizza *et al.*, 2012). For example, qualitative studies have explored how refugee men and women from Kenya, Laos and Cambodia drank alcohol as means of trying to cope with symptoms of stress and forgetting past events (D'Avanzo and Frye, 1992; Adelekan, 2006; Lee *et al.*, 2008).

Despite these risk factors for hazardous alcohol use among forcibly displaced persons, the evidence base is weak on the prevalence and patterns of alcohol use. Systematic reviews have noted limitations including the very small number of studies, particularly in low and middle-income countries which is where the vast majority of forcibly displaced populations live, weak sampling designs, limited statistical analysis and limited use of validated instruments to assess hazardous alcohol use (Weaver and Roberts, 2010; Ezard, 2012).

The few studies of hazardous alcohol use among forcibly displaced persons have consistently shown higher levels of hazardous alcohol use among men compared with women (Jenkins *et al.*, 1990; Kozaric-Kovacic *et al.*, 2000; Marshall *et al.*, 2005; Steel *et al.*, 2005; Puertas *et al.*, 2006; Jeon *et al.*, 2008; Lee *et al.*, 2008; Roberts *et al.*, 2011; Ezard *et al.*, 2012). Evidence on the influence of age is more mixed, with younger age associated with hazardous alcohol use in two studies of South East Asian refugees in the USA (Marshall *et al.*, 2005; Lee *et al.*, 2008), while a study of IDPs in northern Uganda observed higher levels among older age groups (Roberts *et al.*, 2011). A number of studies have shown associations between hazardous drinking and exposure to violent and traumatic events, both from the conflict and after displacement (Kozaric-Kovacic *et al.*, 2000; Marshall *et al.*, 2005; Roberts *et al.*, 2011).

Since 1990, more than 100,000 Bhutanese Refugees have fled to Nepal (van Ommeren *et al.*, 2001). These refugees, called Lhotsampas, are ethnically Nepali, the majority group in southern Bhutan. Bhutan claims that this group of people left willingly and that they were never citizens of Bhutan.

The refugees claim that they were forced to leave Bhutan because of their ethnicity. In 1992, UNHCR established the first camps and since then, they have been living in seven refugee camps in eastern Nepal (IOM Damak, 2008). Camp settlement was managed in such a way that people from same village were kept in the same camp. Many want to return to their homes in Bhutan. Despite this desire, and notwithstanding numerous high-level meetings between the governments of Bhutan and Nepal to resolve the refugee crisis over the past 20 years, Bhutan has not permitted any refugee to return home. Moreover, Nepali government policy has not allowed the integration of refugees into the local community. With neither repatriation nor local integration realistically possible for the majority of refugees, resettlement to a third country emerged as an alternative. In 2007, the Bhutanese refugees began a second phase of migration as the USA along with several other Western nations signed third-country resettlement agreements. Initially, a significant number of the refugees were against resettlement to a third country (IOM Damak, 2008), however since then, ~65,000 of the Bhutanese have found new homes in other countries. This leaves ~45,000 Bhutanese refugees living in the seven refugee camps in eastern Nepal. Qualitative studies undertaken by non-governmental organizations have revealed concerns about alcohol problems. The extent of these problems was unknown, however, hence the rationale for the current study.

## METHODS

This study was conducted in two refugee camps, Goldhap and Timai, located in the eastern part of Jhapa district, during May–June 2010. These two camps were selected in order to develop and pilot an alcohol prevention program, which could be replicated in other camps. We used a census method based on the updated list of the refugee population provided by the United Nations High Commission for Refugees (UNHCR). The study thus targeted the entire population of 8501 aged 15 years and older in the two camps. Of these 8021 (94%) participated in the study and rates of non-participation were similar in both camps (Goldhap 183/3843, 5% and Timai 297/4658, 6%).

Face-to-face interviews were undertaken with the respondents in their own residence. Each interview was conducted individually by a gender-matched research assistant, one of 22 with at least intermediate level education hired from the same refugee community. Three days training were provided on study objectives, basics of quantitative research, informed consent and interviewing skills including role-playing. All participants were informed about the nature of the study, and consent was obtained verbally as is common in humanitarian populations, including amongst Bhutanese refugees (van Ommeren *et al.*, 2001). The study protocol was also approved by the camp management committee (CMC) and UNHCR Nepal office. There were 47 refusals to participate and 78 potential participants were unable to speak. Pre-testing of the instrument was conducted in a separate refugee camp.

The Alcohol Use Disorders Identification Test (AUDIT) was used to assess hazardous and harmful drinking. It was originally developed by the World Health Organization (WHO) as a screening instrument in primary health care

(Saunders *et al.*, 1993; Babor *et al.*, 2001), with a well-validated threshold score of 8 for hazardous or harmful consumption and a score of 20 or greater suggested as indicating possible alcohol dependence. The AUDIT has been found to be suitable for use, with good psychometric properties, in identifying hazardous or harmful consumption across a variety of health care settings and among patients of different cultural backgrounds (Adewuya, 2005; Reinert and Allen, 2007). More recently, the AUDIT has been used in settings other than health care and scores obtained from the AUDIT used to make inferences about the severity of problems in the absence of thresholds (McCambridge and Thomas, 2009).

One difficulty that can arise in use of the AUDIT is in estimating consumption of non-standardized drinks. Since there are similarities in various aspects of alcohol consumption between Nepal and India, we have used the same conversion factor of reported consumption of local beverages to standardized drinks (equivalent to 10 g of alcohol) (Silva *et al.*, 2003). Using the above standard (10 g of alcohol as one peg), two mana (local quantity term) or 1200 ml Chhang/Jad (locally made beverage from rice/corn/millet) or three glasses of local Rakshi (locally distilled alcohol) or two bottles of beer (750 ml each) or a small bottle of vodka are the equivalent to six pegs or standard drinks.

The Statistical Software for Social Science package (SPSS 19.0) was used for data entry and analysis. Samples from the Goldhap and Timai camps were combined to improve statistical power, with camp included as a variable in the analysis. Three outcome measures were used: hazardous or harmful alcohol consumption (AUDIT score >7), possible alcohol dependence (AUDIT score >19) and an AUDIT score as a continuous outcome. First, we performed an unadjusted regression analysis using each covariate of interest (gender, age category, caste/ethnicity, educational status, religion, marital status, resettlement status, working status, history of alcohol use in the family, smoking and tobacco use, substance use and camp) to test for an association with each outcome. Logistic regression was used for the binary outcomes of hazardous alcohol consumption and alcohol dependence; linear regression was used for the AUDIT score as a continuous outcome. Only those covariates that showed a significant association with the outcome in the unadjusted analysis were included in the adjusted model and no other model selection criteria were applied.

## RESULTS

Table 1 shows the socio-demographic characteristics of the study population. The sample was almost evenly split between males and females and the mean age was 35.3 years. Respondents were most commonly married, of the Brahmin/Chhetri or Janajati caste and Hindu. A significant proportion of the sample were illiterate and not currently in paid work (see Table 1).

The prevalence of hazardous drinking (AUDIT score >7) and alcohol dependence (AUDIT score >19) in the study population were 2.8% ( $n=222$ ) [males 5.1% ( $n=198$ ) and females 0.6% ( $n=24$ )] and 0.6% ( $n=51$ ) [males 1.2% ( $n=46$ ) and females 0.1% ( $n=5$ )], respectively. The prevalence of current alcohol consumption (defined as any

Table 1. Socio-demographic characteristic of study population<sup>a</sup>

	Goldhap camp (n = 3660)	Timai camp (n = 4361)	Total (n = 8021)
Sex			
Male	49.7	48.1	48.8
Female	50.3	51.9	51.2
Age groups			
15–19	14.9	15.0	15.0
20–24	20.1	18.1	19.0
25–34	22.4	24.2	23.4
35–44	15.4	16.2	15.8
45–54	11.4	10.8	11.0
>55	15.8	15.8	15.8
Mean (SD)	35.4 (16.8)	35.2 (16.5)	35.3 (16.7)
Education			
Illiterate	28.4	30.3	29.4
Non-formal education	16.1	15.6	15.8
Primary level	6.9	9.9	8.5
Lower secondary level	9.9	16.6	13.5
Secondary level	14.2	14.3	14.3
Intermediate and above	24.4	12.7	18.0
Not stated	0.1	0.6	0.4
Caste/ethnicity			
Brahmin/Chhetri	57.8	30.0	42.7
Janajati	29.5	56.5	44.2
Dalit	12.3	12.5	12.4
Others	0.4	1.1	0.8
Marital status			
Single	30.9	26.1	28.3
Married	63.6	66.8	65.3
Widow/widower	3.9	3.8	3.8
Separated	1.1	2.1	1.6
Divorced	0.3	0.8	0.6
Not stated	0.2	0.5	0.3
Religion			
Hindu	73.3	38.5	54.4
Buddhist	9.9	30.6	21.2
Christian	5.0	12.6	9.1
Kirat	10.9	12.8	11.9
Other	0.9	5.5	3.4
Resettlement status			
No-declaration of interest for resettlement (DOI)	17.6	26.0	22.2
DOI	33.4	42.4	38.3
DOI and in the process of resettlement	48.3	31.0	38.8
Prefer not to say	0.3	0.3	0.3
Working status			
Currently working for earning	32.0	37.4	35.0
Not working	67.9	62.6	65.0

<sup>a</sup>Total does not add up to 100 due to exclusion of respondents who refused to answer or answered 'do not know'.

response other than 'never' to AUDIT question 1), as well as of hazardous or harmful drinking (AUDIT score >7) and possible alcohol dependence (AUDIT score >19), among those who reported drinking is given in Table 2. The prevalence of each of these was higher among males compared with females but there was no clear pattern by age group.

The odds of hazardous or harmful alcohol consumption associated with each of our covariates of interest are given in Table 3. In the unadjusted models, gender, education, religion, working status, history of alcohol use, tobacco use, substance use and camp were all statistically significantly associated with hazardous alcohol consumption. The adjusted model controlled for these covariates and found that males, those who have a history of alcohol use in the family,

those who use tobacco, those who use other substances and those living in Timai camp all exhibit higher odds of hazardous alcohol consumption, whilst those with 'intermediate or above' education exhibit lower odds. Tobacco is used by placing in the mouth, as well as by smoking. Only 25 people used other substances last month, of which the great majority (n = 23) used marijuana. Two participants reported injecting drugs, and although for the majority other substance use was infrequent, for approximately one-third (9/25) this was daily.

For possible alcohol dependence, males (OR = 3.03, 95% confidence interval (CI) 1.19–7.72), those who reported being Christian (compared with being Hindu, OR = 2.19 [1.31–7.77]), currently working for pay (OR = 2.03 [1.07–3.85]), using tobacco (OR = 3.06 [1.20–7.78]) and using other substances (OR = 11.55 [4.48–29.76]) were all at higher odds of alcohol dependence in the unadjusted model. Of these only Christian religion (OR = 2.78 [1.09–7.07]) and substance use (OR = 7.84 [2.89–21.24]) remained statistically significantly associated with alcohol dependence in the adjusted model.

Table 4 presents data using the AUDIT score as a continuous outcome. In the unadjusted analysis, being male, Christian, working for pay, having a history of alcohol use in the family, smoking, substance use and living in Timai camp were all associated with higher AUDIT scores while 'intermediate education or above' and Kirat religion were associated with lower scores. All of these covariates except for Christian religion, work status and camp remained significant in the adjusted model.

## DISCUSSION

This is the first study of hazardous and harmful alcohol use among Bhutanese refugees. It also adds to the currently very limited evidence base on alcohol use and displacement, particularly in low-income countries (Weaver and Roberts, 2010; Ezard, 2012), and the limited research globally on alcohol use in low-income settings (Rajendram *et al.*, 2006). Rates of hazardous and harmful drinking seen here are lower than in some other forced migration populations and higher than others. The prevalence of alcohol dependence among the Bhutanese refugees is lower than general population in the city of Dharan in Nepal (Jhingan *et al.*, 2003), and comparable with that of the general population in Kathmandu (Shrestha *et al.*, 2001). Among those who drink alcohol, the prevalence of hazardous drinking was high and comparable with that seen in general populations in Western countries. The prevalence of possible dependence among current drinkers is also similar to that seen in other populations. Findings of greater risk for hazardous and harmful drinking among men are in line with findings from other studies of forcibly displaced populations and with general population studies. The absence of clear patterning of alcohol-related risk by age is interesting and distinct from that seen in general populations. It is also interesting to note that status within the resettlement process, seen by many refugees as an additional stressor, was not associated with increased alcohol risk or problems in any of the analyses. These findings, to some extent, undermine the extent to which alcohol use may be seen as a coping strategy across this population as a whole.

Table 2. Prevalence by gender and age

Age category	Current drinking		Hazardous/harmful drinking <sup>a</sup>		Possible dependence <sup>b</sup>	
	Men, <i>n</i> (%)	Women, <i>n</i> (%)	Men, <i>n</i> (%)	Women, <i>n</i> (%)	Men, <i>n</i> (%)	Women, <i>n</i> (%)
15–19	69 (11.9)	2 (0.3)	13 (18.8)	1 (50.0)	4 (5.8)	1 (50.0)
20–24	148 (20.9)	9 (1.1)	33 (22.3)	1 (11.1)	6 (4.1)	0
25–34	207 (22.3)	75 (7.9)	45 (21.7)	5 (6.67)	10 (4.8)	2 (2.7)
35–44	173 (29.4)	73 (10.8)	33 (19.1)	7 (9.59)	10 (5.8)	1 (1.4)
45–54	122 (27.4)	46 (10.5)	28 (23.0)	5 (10.9)	6 (4.9)	0
55+	157 (23.6)	74 (12.3)	46 (29.3)	5 (6.8)	10 (6.4)	1 (1.4)
Total	876 (22.4)	279 (6.8)	198 (22.6)	24 (8.6)	46 (5.3)	5 (1.8)

<sup>a</sup>(AUDIT score >7) among current drinkers.<sup>b</sup>(AUDIT score >19) among current drinkers.Table 3. Odds of hazardous or harmful drinking (AUDIT score >7), among current drinkers (*n* = 1155)

Covariate	Unadjusted		Adjusted	
	OR	95% CI	OR	95% CI
Sex				
Female	Ref.		Ref.	
Male	3.10***	1.98–4.85	2.81***	1.71–4.64
Age				
15–19	Ref.			
20–24	1.13	0.56–2.26		
25–34	0.88	0.45–1.70		
35–44	0.79	0.40–1.55		
45–54	1.00	0.50–2.00		
55+	1.15	0.59–2.24		
Caste/ethnicity				
Brahmin/Chhetri	Ref.			
Janajati	0.79	0.54–1.16		
Others	0.92	0.56–1.49		
Educational status				
Illiterate	Ref.		Ref.	
No-formal/primary	1.28	0.91–1.81	1.00	0.69–1.46
Lower secondary/secondary	1.20	0.81–1.78	1.55	0.85–2.83
Intermediate or above	0.44*	0.22–0.91	0.35**	0.16–0.75
Religion				
Hindu	Ref.		Ref.	
Buddhist	0.84	0.60–1.19	0.70	0.48–1.02
Christian	2.00*	1.16–3.45	1.55	0.85–2.83
Kirat	0.65	0.40–1.04	0.61	0.37–1.00
Other	0.98	0.45–2.11	0.86	0.37–1.98
Marital status				
Married	Ref.			
Single	1.35	0.93–1.98		
Widow/widower	0.69	0.29–1.66		
Separated/divorced	1.95	0.91–4.19		
Resettlement status				
Non-DOI	Ref.			
DOI	1.11	0.78–1.60		
DOI and in the process	1.04	0.71–1.53		
Working status				
Not working	Ref.		Ref.	
Currently working for earning	1.55**	1.14–2.12	1.17	0.83–1.67
History of alcohol use in the family				
No	Ref.		Ref.	
Yes	1.47*	1.04–2.09	1.55*	1.07–2.25
Smoking and tobacco use				
No	Ref.		Ref.	
Yes	2.57***	1.67–3.92	2.10**	1.35–3.27
Substance use				
No	Ref.		Ref.	
Yes	12.00***	4.64–31.04	10.77***	3.90–29.75
Camp				
Goldhap	Ref.		Ref.	
Timai	1.48*	1.06–2.05	1.55*	1.07–2.25

\**P* < 0.05, \*\**P* < 0.01 and \*\*\**P* < 0.001; DOI = declaration of interest for resettlement.

Table 4. Associations between AUDIT score and socio-demographic characteristics among current drinkers ( $n = 1155$ )

Covariate	Unadjusted		Adjusted	
	B	95% CI	B	95% CI
Sex				
Female	Ref.		Ref.	
Male	2.04***	1.23–2.85	1.77***	0.87–2.67
Age				
15–19	Ref.			
20–24	–0.82	–2.52 to 0.88		
25–34	–1.18	–2.76 to 0.40		
35–44	–0.99	–2.60 to 0.61		
45–54	–0.98	–2.67 to 0.71		
>55	–0.52	–2.14 to 1.10		
Caste/ethnicity				
Brahmin/Chhetri	Ref.			
Janajati	–0.70	–1.64 to 0.25		
Others	–0.75	–1.96 to 0.45		
Educational status				
Illiterate	Ref.		Ref.	
No-formal/primary	0.56	–0.28 to 1.41	0.003	–0.84 to 0.85
Lower secondary/secondary	0.56	–0.38 to 1.51	–0.30	–1.27 to 0.68
Intermediate or above	–1.44*	–2.73 to –0.13	–1.81**	–3.12 to –0.51
Religion				
Hindu	Ref.		Ref.	
Buddhist	0.99	–0.72 to 0.91	–0.19	–1.03 to 0.64
Christian	1.90*	0.38–3.42	1.16	–0.34 to 2.66
Kirat	–1.06*	–2.10 to –0.3	–1.16*	–2.18 to –0.14
Other	–0.23	–2.09 to 1.63	–0.47	–2.33 to 1.40
Marital status				
Married	Ref.			
Single	0.54	–0.41 to 1.49		
Widow/widower	–0.98	–2.80 to 0.83		
Separated/divorced	1.75	–0.36 to 3.85		
Resettlement status				
Non-DOI	Ref.			
DOI	0.52	–0.34 to 1.38		
DOI and in the process	–0.10	1.00–0.81		
Working status				
Not working	Ref.		Ref.	
Currently working for earning	1.07**	0.36–1.78	0.37	–0.38 to 1.12
History of alcohol use in the family				
No	Ref.		Ref.	
Yes	1.05**	0.27–1.83	1.11**	0.35–1.88
Smoking and tobacco use				
No	Ref.		Ref.	
Yes	1.86***	1.05–2.68	1.29**	0.48–2.09
Substance use				
No	Ref.		Ref.	
Yes	8.41***	5.89–10.93	7.69***	5.20–10.18
Camp				
Goldhap	Ref.			
Timai	0.78*	0.03–1.52	0.67	–0.10 to 1.44

\* $P < 0.05$ , \*\* $P < 0.01$  and \*\*\* $P < 0.001$ ; DOI = declaration of interest for resettlement.

The study also provides novel evidence on risk factors associated with hazardous alcohol that have not been reported in other studies of forcibly displaced persons. The study identifies the influence of a history of alcohol use in the family on hazardous drinking. It is also the first to examine the association of hazardous alcohol use with tobacco and other substance use among forcibly displaced population, and the findings suggest a similar pattern of their co-occurrence to studies from general populations globally (Farrell *et al.*, 2001; Drobles, 2002; John *et al.*, 2003). Hazardous and harmful drinking were strongly associated with the use of other substances, and there is quite clearly a minority using multiple inter-related substances. As a result

of this study, a range of activities has been initiated to reduce harms related to alcohol in the camps. These services include psycho-education, group work, individual counselling, detoxification and rehabilitation designed and targeted at those with increased risk of harmful drinking. This is especially useful given the stigma attached to help-seeking relating to alcohol use and mental health problems in general.

This study has strengths including the use of the AUDIT and the conduct of multivariate analyses to address possible confounding in identification of risk factors. We decided not to use a multi-level model, nesting the data with camp, so as to simplify the analyses. This means that camp-level influences such as differential alcohol availability are not

addressed by this study. It is also the case that some findings are influenced by relatively small numbers in some cells, for example in relation to possible dependence and other substance use. Although the AUDIT is brief and efficient in capturing a number of outcomes of interest, therein lies a limitation of this study as more detailed measures of the outcomes of interest may yield more valuable data. The study context is also important to consider. Many of the respondents were in the process of being resettled, and may have been reluctant to share information on their drinking behaviour if they thought it might create a problem in being resettled. This possibility may have been exacerbated by stigma associated with alcohol use and camp administration prohibition of alcohol production and consumption inside the camp, punishable with fines. These threats to the validity of the self-reported data and other study limitations should be borne in mind.

Recognition of the importance of addressing alcohol use among forcibly displaced persons appears to be increasing. UNHCR and WHO have produced guidelines and accompanying research on the use rapid assessment of alcohol and other substance use in such settings (UNHCR and WHO, 2008; Ezard *et al.*, 2011). There is also some guidance on addressing hazardous alcohol in the leading guidelines on mental and psychosocial health in humanitarian crises settings (IASC, 2007). However, both programmes and research on hazardous alcohol among forcibly displaced populations are still at a rather nascent stage despite the fact that the majority live in protracted settings where longer-term developmental activities could take place to address chronic conditions associated with hazardous alcohol use. There remains limited understanding of how and why patterns of alcohol use may change as a result of forced displacement. There is also no high quality data on the effectiveness of alcohol-related interventions for forcibly displaced persons, reflecting broader gaps in the evidence on the effectiveness of mental and psychosocial health interventions among conflict-affected populations (Tol *et al.*, 2011; Tol and van Ommeren, 2012). Substantially greater research is required to alcohol use among forcibly displaced persons to better understand its patterns and drivers in order to help address the issues more effectively.

#### AUTHORS' CONTRIBUTIONS

N.P.L.: developed needs assessment design, was responsible for implementation of the needs assessment, contributed to analyses, contributed to drafting and revising of manuscript. M.J.: initiated needs assessment, developed study design, contributed to drafting manuscript, contributed to analyses, contributed to drafting and revising of manuscript. A.M.: conducted the secondary data analyses and contributed to the drafting and revising of the manuscript. B.R.: contributed to discussions about data analyses and drafting and revising of the manuscript. J.M.: brought together the study team, designed secondary data analyses and led integration of draft text and revisions of the paper.

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#### REFERENCES

- Adelekan M. (2006) *Rapid Assessment of Substance use and HIV Vulnerability in Kakuma Refugee Camp and Surrounding Community, Kakuma, Kenya*. Geneva: United Nations High Commissioner for Refugees.
- Adeyuya AO. (2005) Validation of the Alcohol Use Disorders Identification Test (AUDIT) as a screening tool for alcohol-related problems among Nigerian university students. *Alcohol* **40**:575–7.
- Babor TF, Higgins-Biddle JC, Saunders JB *et al.* (2001) *AUDIT—Alcohol Use Disorders Identification Test: Guidelines for Use in Primary Care*. Geneva: World Health Organization.
- Breslau N, Davis GC, Schultz LR. (2003) Posttraumatic stress disorder and the incidence of nicotine, alcohol, and other drug disorders in persons who have experienced trauma. *Arch Gen Psychiatry* **60**:289–94.
- Chilcoat HD, Breslau N. (1998) Posttraumatic stress disorder and drug disorders: testing causal pathways. *Arch Gen Psychiatry* **55**:913–7.
- D'Avanzo CE, Frye B. (1992) Stress and self-medication in Cambodian refugee women. *Addict Nurs Netw* **42**:59–60.
- de Jong J. (2002) *Trauma, War, and Violence: Public Mental Health in Socio-cultural Context*. New York, NY: Kluwer Academic/Plenum Publishers.
- de Jong JT, Komproe IH, Van Ommeren M. (2003) Common mental disorders in postconflict settings. *Lancet* **361**:2128–30.
- Drobes D. (2002) *Concurrent Alcohol and Tobacco Dependence: Mechanisms and Treatment*. Bethesda, MD: NIAAA.
- Ezard N. (2012) Substance use among populations displaced by conflict: a literature review. *Disasters* **36**:533–57.
- Ezard N, Oppenheimer E, Burton A *et al.* (2011) Six rapid assessments of alcohol and other substance use in populations displaced by conflict. *Confl Health* **5**:1.
- Ezard N, Thiptharakun S, Rhodes T *et al.* (2012) Risky alcohol use among reproductive-age men, not women, in Mae La refugee camp, Thailand, 2009. *Confl Health* **6**:7.
- Farrell M, Howes S, Bebbington P *et al.* (2001) Nicotine, alcohol and drug dependence and psychiatric comorbidity. Results of a national household survey. *Br J Psychiatry* **179**:432–7.
- Galea S, Ahern J, Tracy M *et al.* (2007) Neighborhood income and income distribution and the use of cigarettes, alcohol, and marijuana. *Am J Prev Med* **32**:S195–202.
- IASC. (2007) *Guidelines on Mental Health and Psychosocial Support in Emergency Settings*. Geneva: Inter-Agency Standing Committee.
- IDMC. (2012) *Internal Displacement Global Overview 2011*. Geneva: Internal Displacement Monitoring Centre.
- Ingleby D ed (2005) *Forced Migration and Mental Health*. New York: Springer.
- IOM Damak. (2008) *Cultural Profile: The Bhutanese Refugees in Nepal: A Tool for Settlement Workers and Sponsors*. Kathmandu: IOM Damak.
- Jenkins CNH, McPhee SJ, Bird JA *et al.* (1990) Cancer risks and prevention practices among Vietnamese refugees. *West J Med* **153**:34–9.
- Jeon WT, Yu SE, Cho YA *et al.* (2008) Traumatic experiences and mental health of North Korean refugees in South Korea. *Psychiatr Invest* **5**:213–20.
- Jhingan HP, Shyangwa P, Sharma A *et al.* (2003) Prevalence of alcohol dependence in a town in Nepal as assessed by the CAGE questionnaire. *Addiction* **98**:339–43.
- John U, Meyer C, Rumpf HJ *et al.* (2003) Probabilities of alcohol high-risk drinking, abuse or dependence estimated on grounds of tobacco smoking and nicotine dependence. *Addiction* **98**:805–14.
- Johnson TP. (1996) Alcohol and drug use among displaced persons: An overview. *Subs Use Misuse* **31**:1853–89.

- Kessler RC, Crum RM, Warner LA *et al.* (1997) Lifetime co-occurrence of DSM-III-R alcohol abuse and dependence with other psychiatric disorders in the National Comorbidity Survey. *Arch Gen Psychiatry* **54**:313–21.
- Kizza D, Hjelmeland H, Kinyanda E *et al.* (2012) Alcohol and suicide in postconflict northern Uganda: a qualitative psychological autopsy study. *Crisis* **33**:95–105.
- Kozaric-Kovacic D, Ljubin T, Grappe M. (2000) Comorbidity of posttraumatic stress disorder and alcohol dependence in displaced persons. *Croat Med J* **41**:173–8.
- Lee JP, Battle RS, Antin TMJ *et al.* (2008) Alcohol use among two generations of Southeast Asians in the United States. *J Ethn Subs Abuse* **7**:357–75.
- Loescher G, Milner J. (2009) Understanding the challenge. *Forced Migr Rev* **9**–11.
- Marshall GN, Schell TL, Elliott MN *et al.* (2005) Mental health of Cambodian refugees 2 decades after resettlement in the United States. *Journal of the American Medical Association* **294**:571–9.
- McCambridge J, Thomas BA. (2009) Short forms of the AUDIT in a Web-based study of young drinkers. *Drug Alcohol Rev* **28**:18–24.
- Miller K, Rasco L. (2004) An ecological framework for addressing the mental health needs of refugee communities. In Miller K, Rasco Ls (eds), *The Mental Health of Refugees: Ecological Approaches to Healing and Adaptation*. Mahwah, NJ: Lawrence Erlbaum Associates, pp 1–66.
- Porter M, Haslam N. (2005) Predisplacement and postdisplacement factors associated with mental health of refugees and internally displaced persons: a meta-analysis. *JAMA* **294**:602–12.
- Puertas G, Rios C, del Valle H. (2006) The prevalence of common mental disorders in urban slums with displaced persons in Columbia. *Pan Am J Public Health* **20**:324–30.
- Rajendram R, Lewison G, Preedy VR. (2006) Worldwide alcohol-related research and the disease burden. *Alcohol Alcohol* **41**:99–106.
- Reinert DF, Allen JP. (2007) The alcohol use disorders identification test: an update of research findings. *Alcohol Clin Exp Res* **31**:185–99.
- Rhodes JE, Jason LA. (1990) A social stress model of substance abuse. *J Consult Clin Psychol* **58**:395–401.
- Roberts B, Felix Ocaka K, Browne J *et al.* (2011) Alcohol disorder amongst forcibly displaced persons in northern Uganda. *Addict Behav* **36**:870–3.
- Sacco P, Bucholz KK, Spitznagel EL. (2009) Alcohol use among older adults in the national epidemiologic survey on alcohol and related conditions: a latent class analysis. *J Stud Alcohol Drugs* **70**:829–38.
- Saunders JB, Aasland OG, Amundsen A *et al.* (1993) Alcohol consumption and related problems among primary health care patients: WHO Collaborative Project on Early Detection of Persons with Harmful Alcohol Consumption: I. *Addiction* **88**:249–362.
- Shrestha NM, Shrestha DM, Karmacharya K *et al.* (2001) *Study of Prevalence of Alcohol use and Suicide in Kathmandu Metropolitan City*. Kathmandu: WHO South-East Asia Regional Office.
- Silva MC, Gaunekar G, Patel V *et al.* (2003) The prevalence and correlates of hazardous drinking in industrial workers: A study from Goa, India. *Alcohol Alcohol* **38**:79–83.
- Steel Z, Silove D, Chey T *et al.* (2005) Mental disorders, disability and health service use amongst Vietnamese refugees and the host Australian population. *Acta Psychiatr Scand* **111**: 300–9.
- Steel Z, Chey T, Silove D *et al.* (2009) Association of torture and other potentially traumatic events with mental health outcomes among populations exposed to mass conflict and displacement: a systematic review and meta-analysis. *JAMA* **302**:537–49.
- Stewart SH. (1996) Alcohol abuse in individuals exposed to trauma: a critical review. *Psychol Bull* **120**:83–112.
- Tol WA, Barbui C, Galappatti A *et al.* (2011) Mental health and psychosocial support in humanitarian settings: linking practice and research. *Lancet* **378**:1581–1591.
- Tol WA, van Ommeren M. (2012) Evidence-based mental health and psychosocial support in humanitarian settings: gaps and opportunities. *Evid Based Ment Health* **15**:25–6.
- UNHCR. (2012) *UNHCR Global Trends 2011*. Geneva: United Nations High Commissioner for Refugees.
- UNHCR and WHO. (2008) *Rapid Assessment of Alcohol and Other Substance use in Conflict-affected and Displaced Populations*. Geneva: United Nations High Commissioner for Refugees/World Health Organisation.
- van Ommeren M, de Jong JTV, Sharma B *et al.* (2001) Psychiatric disorders among tortured Bhutanese refugees in Nepal. *Arch Gen Psychiatry* **58**:475–82.
- Weaver H, Roberts B. (2010) Drinking and displacement: a systematic review of the influence of forced displacement on harmful alcohol use. *Subst Use Misuse* **45**:2340–55.