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Impact of the 2011 Queensland floods on the use of tobacco, alcohol and medication

Lyle R. Turner

School of Public Health and Social Work, Institute of Health and Biomedical Innovation, Queensland University of Technology

Katarzyna Alderman

School of Population Health, University of Queensland

Cunrui Huang

Centre for Environment and Population Health, School of Environment, Griffith University, Queensland

Shilu Tong

School of Public Health and Social Work, Institute of Health and Biomedical Innovation, Queensland University of Technology

The health effects of floods are varied, ranging from direct impacts, such as death or injury, to indirect impacts, such as exposure to increased infectious disease and environmental contaminants, exacerbation of existing physical and mental health problems and economic loss.[1-4] Mental health problems experienced by affected populations include post-traumatic stress disorder[5-8] and potentially related behaviours such as substance usage (e.g. alcohol and smoking) have been seen following floods and other disasters.[9-11] It is important to examine the relationship between these behaviours and exposure to floods in order to inform disaster management and response planning.

Severe rainfall between November 2010 and January 2011 saturated much of the state of Queensland and triggered severe flooding throughout the south-east of the State.[12] We conducted a community-based survey in the greater Brisbane region from July to August 2011 to examine the impacts of the Queensland floods on residents' physical and mental health.[13] In particular, we sought to assess the association between direct exposure to flooding and the use of tobacco, alcohol and medication.

A representative sample of 3,000 residents (aged 18 years and over) was randomly selected from 12 electorates within the greater Brisbane region identified as flood-affected. The survey included questions related to the level of exposure that residents experienced (including questions about damage to outside property, living space, removal of parts of household, damage to vehicles, and friends or relative moving in for at least 48 hours as a result of the floods), general health status (including tobacco, alcohol and medication usage), mental health status and socio-demographic characteristics. Given the low-risk nature of the survey, we did not include questions related to inter-personal violence.

Multivariable logistic regression models were used to examine the impact of the floods on the self-reported use of tobacco, alcohol and medication. In all analyses, substance usage was treated as the response variable with self-reported flood impacts as an independent variable. The models were adjusted for gender, age and income.

Table 1: Effect of flooding on tobacco, alcohol and medication usage.

	Unadjusted model	Adjusted model[a]
Outcome	**OR (95% CI)**	**OR (95% CI)**
Increased tobacco usage	4.8 (2.0-11.8)	4.5 (1.8-11.1)
Increased alcohol usage	4.4 (1.6-11.9)	5.2 (1.8-11.8)
Increased medication usage	5.3 (2.0-13.8)	5.1 (1.9-13.5)

a Adjusted for age, gender and income

Responses were received from 960 invited residents (response rate: 32%) – a similar rate to those found in other disaster-related studies where continuing disaster recovery and trauma may restrict people's capacity to respond.[14] There were slightly more female respondents (56.4%) than male (43.6%), with the mean age of respondents being 51 years (SD=16.5 years). In terms of exposure to flooding, 10.6% (n=100) of respondents reported some form of direct flood impact.

Table 1 shows the results of the logistic regression analyses. There were consistent results between the univariate and adjusted models, with direct flood impact found to be a significant risk factor for increased usage for all substance groups. Specifically, residents that reported direct flood impact were more likely to increase their tobacco (OR 4.5, 95% CI 1.8-11.1), alcohol (OR 5.2, 95% CI 1.8-11.8) and medication (OR 5.1, 95% CI 1.9-13.5) usage.

The findings of this study support the notion that direct exposure to the 2011 Queensland floods resulted in an increase in alcohol and tobacco usage, along with an increase in flood-related medication uptake. It is important that public health organisations integrate intervention measures for alcohol and tobacco use into related mental health programs, in order to minimise the negative health effects of floods and other disasters.

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Correspondence to: Dr Shilu Tong, School of Public Health and Social Work, Institute of Health and Biomedical Innovation, Queensland University of Technology, Victoria Park Road, Kelvin Grove, QLD 4059; email: s.tong@qut.edu.au