

## Comparison of tobacco, alcohol and illegal drug usage among school students in three Pacific Island societies

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### Abstract

**Background:** Many Pacific Island countries are in social and epidemiological transition, but there are little population data about drug and alcohol usage among adolescents in this region.

**Methods:** Random samples of school students aged 11–17 years completed surveys in three populations: Pohnpei State in the Federated States of Micronesia ( $n = 1495$ ), Tonga ( $n = 2808$ ) and Vanuatu ( $n = 4474$ ).

**Results:** Among 15-year-olds, boys in Tonga reported the highest prevalence of weekly smoking (29%), followed by boys in Pohnpei (17%). Kava use at a potentially harmful level (i.e. daily) was low in all countries. Drunkenness on two or more occasions was much more common among 15-year-old boys in Pohnpei (51%) than same-age youth in the other countries. Marijuana use was most often reported by boys (20%) and girls (20%) in Pohnpei, while solvents had been used most often by boys in Pohnpei (15%), and methylated spirits by boys in Tonga (20%). In all countries bullying of other students was independently related to regular smoking, while bullying behaviour and strong relationships with peers and others outside of the family were related to past drunkenness and use of illegal drugs in Tonga and Vanuatu.

**Conclusions:** Overall, levels of adolescent substance use were consistently higher in Tonga and Pohnpei than in Vanuatu. These unique data provide a basis for setting priorities and evaluating action to address the health risks posed by substance use in these Pacific Island societies.

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### 1. Introduction

Among the health impacts of globalization in developing nations, patterns of tobacco and other drug usage are of particular concern because of their immediate association with psychosocial health and physical well being and their longer term contribution to the burden of chronic disease (Sells and Blum, 1996). Most smokers initiate this behaviour during their adolescent years (Yu and Williford, 1992), and this will markedly elevate their risk of lung and other cancers, cardiovascular disease and respiratory conditions (Taylor, 1993; Gold et al., 1996). Drunkenness and the use of substances like marijuana and solvents are associated with traffic and other types of injury, an increased risk of HIV infection, cognitive impairment and mental disorders (Lowry et al., 1994; Shrier et al., 1996).

The most comprehensive international study of substance use by young people has been the Global Youth Tobacco Survey (GYTS) which has been carried out in over 120 countries (Global Youth Tobacco Survey Collaborating Group, 2003). Data on adolescent use of other substances, including alcohol and marijuana, is available for the 40 countries taking part in the Health Behaviour in School Children (HBSC) surveys, which are primarily in Europe, but also include the United States and Canada (World Health Organization Europe, 2004). The European School Survey Project on Alcohol and Other Drugs (ESPAD) is another significant data source on adolescent substance use for 35 European countries (Hibell et al., 2000).

Data about substance use by adolescents in low and middle income countries is more limited. The Panamá, Centroamérica, República Dominicana (PACARDO) study provides comparable data on use of alcohol, tobacco, inhalants and other illegal drugs by youth in seven Latin American countries (Dormitzer et al., 2004). Independent surveys of adolescent drug use have been carried out in a number of developing nations, but these have

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used a variety of sampling and measurement methods (Bauman and Phongsavan, 1999; Eide and Acuda, 1995; Carvalho et al., 1995; Villatoro et al., 1998; Siqueira and Brook, 2003; Zhimin et al., 2001). Because many developing countries are experiencing dramatic social changes due to economic globalization, urbanization and exposure to diverse influences through the mass media, it has been recognised that substance misuse by adolescents is a growing health problem (United Nations Economic and Social Council, 1999). Standardized methods for monitoring the prevalence and growth of this health threat are needed.

The island countries of the Pacific are characterised by populations with high proportions of children and adolescents (United Nation Population Division, 2004). Young people in this region have been identified as facing several challenges to their health and development, including elevated levels of psychosocial stress (Rubinstein, 2002; Lowe, 2003), high unemployment (Bryant-Tokalau, 1995), and high rates of chronic disease and related risk factors (Coyne, 2000; Colagiuri et al., 2002). Many Pacific Island countries are also facing substantial economic changes, with the concentration of development activity in urban areas leading to a widening gap between islands and internal migration from rural to urban areas, particularly by young people, in search of better opportunities for education and employment (McMurray, 2003a). Rapid changes in economic circumstances and the tensions between traditional Pacific values and western behavioural mores have been identified as contributing to risk behaviours and the psychosocial well being of young people in this region (Herdt and Leavitt, 1998; Lowe, 2003).

This article presents data concerning substance use by young people from the state of Pohnpei in the Federated States of Micronesia (FSM), the Kingdom of Tonga, and Vanuatu—three Pacific populations with diverse cultural and economic characteristics. The State of Pohnpei is the second most populous state in FSM and the administrative centre of the nation. Its people are predominantly of Micronesian origin. Due to a Compact of Free Association it holds with the United States, FSM has the highest gross domestic product (GDP) per capita of these three jurisdictions (World Health Organization Regional Office for the Western Pacific, 2005). Tongans are of Polynesian origin and, while having a lower GDP per capita than FSM, this country has experienced dramatic improvements in standards of living in the last 50 years and now exceeds FSM on the human development index (World Health Organization Regional Office for the Western Pacific, 2005). The population of Vanuatu is Melanesian. This jurisdiction presently has a lower GDP per capita than the others, but it is roughly equivalent to FSM in the Human Development Index. In 2000, the proportion of the populations of FSM, Tonga and Vanuatu who were aged less than 25 years was estimated to be 61.6%, 58.7%, and 60.8%, respectively (United Nation Population Division, 2004).

These jurisdictions were included in this study because of their interest in working with UNICEF in the development and implementation of a Lifeskills program for adolescents. The aim of the research reported here was to identify the prevalence and trends in smoking, alcohol and illegal drug use in each population, and to identify priorities for action. Comparisons across

these populations in age and sex trends in substance use, and in psychosocial and behavioural factors related to the higher levels of usage, provides an opportunity to identify commonalities and differences which could be considered in intervention development.

## 2. Methods

### 2.1. Sampling methods and study population

The Health Behaviour and Lifestyle of Pacific Youth (HBLPY) study was a cross-sectional survey of a representative national sample of school students aged 11–17 years in Tonga, Vanuatu and Pohnpei State of FSM. The methodology of this survey was modelled on the HBSC surveys conducted by WHO Europe since 1982 (Aaro et al., 1986; Currie et al., 2002), and has been described in detail elsewhere (Phongsavan et al., 2005).

Students were selected using cluster random sampling of primary and secondary schools; international schools and schools located in remote regions were removed from the sampling frame. In FSM, surveys were conducted in Pohnpei state only because of its accessibility and the interest of stakeholders in collecting adolescent health information. Given the social and developmental diversity of the states of FSM, the findings can therefore only be generalised to students in Pohnpei. The island groups of Tongatapu, Vava'u and Hapa'i were included in Tonga. High proportions of schools in each jurisdiction participated, including: all secondary schools in Pohnpei state; 75% of secondary schools in Vanuatu; 20% and 43% of all eligible primary and secondary schools in Tonga. Primary school students were not included in Pohnpei and Vanuatu because of their variable literacy levels. Because of this, the age range of the student sample in each population varied: 14–17 years in Pohnpei, 11–17 years in Tonga, and 12–17 years in Vanuatu.

### 2.2. The questionnaire

The questionnaire used in all jurisdictions measured: socio-demographic characteristics; substance use; dietary habits; physical activity; television and video watching; mental well being; perceptions of the school environment; ease of communication with family, peers and others; community participation; injury and violence; personal hygiene. The substance use questions measured prevalence and frequency of smoking, kava use, drunkenness, and use of what is termed illegal drugs (marijuana, glue/petrol, methylated spirits; although legislation prohibiting use of each of these drugs may not exist in all jurisdictions). Students were firstly asked whether they had ever used the substance in question, then those indicating that they had were asked to report the frequency of their current use (every day, at least once per week, less than once per week, or not at all). Those who had tasted alcohol in the past were asked to select the number of times they had ever consumed so much that they were really drunk (>10 times, 4–10 times, 2–3 times, once, or never). The reliability of these measures had been tested in earlier studies in multiple countries (Currie et al., 2002; Smet et al., 1999; Forero et al., 1999).

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