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The effect of asset-based wealth inequality on problem drinking among rural Thai elders: A prospective population-based cohort study☆

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ABSTRACT

Evidence on the link between income inequality and alcohol-related problems is scarce, inconclusive and dominated by studies from the developed world. The use of income as a proxy measure for wealth is also questionable, particularly in developing countries. The goal of the present study is to explore the contextual influence of asset-based wealth inequality on problem drinking among Thai older adults. A population-based cohort study with a one-year follow-up was nested in a Demographic Surveillance System (DSS) of 100 villages in western Thailand. Data were drawn from a random sample of 1104 older residents, aged 60 or over (one per household) drawn from all 100 villages, of whom 982 (89%) provided problem drinking data at follow-up. The primary outcome measure was a validated Thai version of the Alcohol-Used Disorder Identification Test for problem drinking. Living in areas of high wealth inequality was prospectively associated with a greater risk for problem drinking among older people (adjusted odds ratio 2.30, 95% confidence intervals 1.02–5.22), after adjusting for individual-level and village-level factors. A rise in wealth inequality over the year was also independently associated with an increased risk of problem drinking (adjusted odds ratio 2.89, 95% confidence intervals 1.24–6.65). The associations were not explained by the social capital, status anxiety or psychosocial stress variables. The data suggest that wealth inequality and an increase in inequality across time lead to a greater risk of problem drinking. Efforts should be directed towards reducing gaps and preventing large jumps in inequality in the communities. Further research should investigate the effect of asset-based inequality on various health risk behaviors and its specific mediating pathways.

Introduction

Alcohol-related problems are a major global public health concern being associated with a wide range of social and economic challenges (WHO, 2007b). Alcohol is a major contributor to global burden of disease and the third most important health risk factor, leading to premature death and disability (WHO, 2009). From 1997 to 2007 the amount of alcohol consumption among Thai people has been steadily increasing from 7.28 L of pure alcohol per head to 7.71 L per head (WHO, 2007a). Alcohol is also the largest health risk factor contributing to 8.1% of the total burden of disease from all causes (in Disability Adjusted Life Years or DALYs) in Thailand (Thai Working Group on Burden of Disease, 2011).

The notion that the distribution of wealth within societies could be a health determinant has attracted a great deal of attention in public health research. Thailand is a developing country which has seen significant growth in Gross Domestic Product (GDP) over the past few decades. However, this economic growth has been unequal across groups of populations with greater increases for the

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rich, thereby contributing to greater disparity (Phongpaichit, 2011). Thailand's GINI coefficient of household income inequality, an index measuring the extent to which the distribution of income among households within an economy deviates from a perfectly equal distribution, is estimated to be 0.54 in 2009 (CIA, 2009), which is among the highest in the world. By comparison, most developed countries have a GINI under 0.40 (UNDP, 2009). Income inequality has been shown to be associated with poorhealth and social outcomes including all-cause mortality (Ross et al., 2000), violent crime (Hsieh & Pugh, 1993) and substance use (Galea, Ahern, Tracy, & Vlahov, 2007). The impact of income inequality on life expectancy at birth is also observed in Thai people (Rojroongwasinkul, 2006).

A number of theories have been put forward to explain the association between wealth inequality and health. For instance, the 'social capital' theory holds that higher levels of wealth inequality increase status differentials between individuals, thereby reducing levels of interpersonal trust (Kawachi & Berkman, 2000; Kennedy, Kawachi, & Prothrow-Stith, 1996). The 'status anxiety' theory on the other hand argues that inequality damages individual health via psychosocial processes based on perceptions of one's place in the social or status hierarchy (Wilkinson, 1996, 2005). The perception of inferiority may produce negative feelings which damage individual health via psycho-endocrine mechanisms but also damage health and well-being indirectly by reducing levels of social capital within society (Wilkinson & Pickett, 2009). The 'status anxiety' model therefore shares the psychological stress mechanism with the 'social capital' hypothesis. Inequality may put people under stress through such mechanisms and make them more likely to adopt stress-relieving behaviors such as drinking and substance use (Rhodes & Jason, 1990).

Wealth inequality can be measured in a number of ways, but is most often measured through the GINI coefficient of income inequality in the field of health research (Kondo et al., 2009). The use of income as a proxy measure for wealth in developing countries remains problematic because data on income are often unavailable or unreliable. Moreover, in some circumstances, inequality of assets may be more prominent than income inequality and more relevant to economic development (Deininger & Olinto, 2000; McKenzie, 2005). For example, it is well-known that income in kind (e.g., from home production) is of particular importance in developing countries. If people rely disproportionately on income in kind, its neglect might lead to significantly inaccurate inequality. In addition, inequality measures should be representative of the population at large. Restricting attention to income may be acceptable in developed economies where wage earners comprise the lion's share of the economically active population. In developing countries, however, a significant share of the population is self-employed in agriculture or in informal sector, and has various sources of income (e.g., remittances), which are often uncertain and cannot be easily corrected for. Because information on certain kinds of asset is usually easy to obtain and appears to be a more reliable and valid measure of wealth than the measure of income or expenditure, the asset index has been introduced to address such problems (Falkingham & Namazie, 2002; Prakongsai, 2006) and later led to the development of an asset-based approach to measuring wealth inequality (McKenzie, 2005).

In measuring inequality, it is recommended that choosing a unit of analysis to capture the right level of differentiation should be on the basis of the processes through which inequality may influence specific health outcomes (Diez Roux, 2001). In previous studies on income inequality and health, the choice is often a large-scale geographical unit such as regions or countries. However, measuring inequality at a local level may also be relevant, particularly in developing countries, where a large section of the population live in small villages in rural areas. The perception of inequality may be salient at the village level because people living in the same village are more likely to be closely connected and influenced by their neighbors. Comparisons of wealth with neighbors, the resulting sense of inferiority or disparities in achievement, may all collude to create anxiety in a small village environment. However, the effect of inequality can also operate at the neighborhood level through social-interactional and institutional mechanisms, which in turn account for a variety of problem behaviors (Sampson, Morenoff, & Gannon-Rowley, 2002). In Thailand, a village is also an administratively defined neighborhood and relevant when local health and social policies are involved.

To date, studies examining the link between wealth inequality and alcohol-related problems, all carried out in the United States and Europe, have shown inconsistent findings (Blomgren, Martikainen, Makela, & Valkonen, 2004; Elgar, Roberts, Parry-Langdon, & Boyce, 2005; Galea et al., 2007; Henderson, Liu, Diez Roux, Link, & Hasin, 2004). A study in New York found that maldistributed neighborhood income was significantly associated with a greater likelihood of alcohol use (Galea et al., 2007). Another survey conducted in countries in Europe and America found that adolescents of certain age groups in countries of high income inequality consumed more alcohol and reported more episodes of drunkenness than their counterparts in countries of low income inequality (Elgar et al., 2005). Other studies, however, did not find the effect of inequality at a state- or regional-level on alcohol outcomes among general adult populations (Blomgren et al., 2004; Henderson et al., 2004). Such a contextual influence of wealth inequality has not yet been explored in low or middle-income developing countries, which are generally more likely to suffer from more disparity.

Kanchanaburi's Demographic Surveillance System (DSS) presents a unique opportunity to study the prospective relationship of wealth inequality and health outcomes. Kanchanaburi is a large province in western Thailand and the only one in the country which has a DSS, comprising a longitudinal census for monitoring population changes. DSS is especially suited for studies on older people because they rarely migrate and are less likely to be lost during follow-up compared to younger people. In 2007, about 11% of those aged 60 years or over in Kanchanaburi had reported drinking alcohol (Center for Alcohol Studies, 2007).

Our goal in the present study was to examine the prospective relationship between asset-based wealth inequality at baseline, its one-year change and risk for individual problem drinking among older people aged 60 or over at one year follow-up, accounting for individual- and village-level potential confounders. We also sought to examine the possible mediating effect of individual-level perceived social capital, social anxiety and psychological stress variables.

Methods

Study design and setting

We obtained information from a data source originally designed to investigate out-migration of children and its impact on mental health of the older parents left behind in rural Thailand (Abas et al., 2009), nested in the Kanchanaburi Demographic Surveillance System (DSS) in western Thailand (Institute for Population and Social Research, 2001). The DSS provides a longitudinal database on over 12,500 households (containing over 42,000 individuals) in 100 villages (or sampling units), which were selected from a total of nearly 1000 villages. The sampled villages comprised 20 from each of 5 strata; rice producing (20/193), plantation crops (20/93), upland areas (20/94), mixed economy (20/491) and urban/semi-urban