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Research paper

Economic consequences of legal and illegal drugs: The case of social costs in Belgium

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ABSTRACT

Background: Legal and illegal drugs impose a considerable burden to the individual and to society. The misuse of addictive substances results in healthcare and law enforcement costs, loss of productivity and reduced quality of life.
Methods: A social cost study was conducted to estimate the substance-attributable costs of alcohol, tobacco, illegal drugs and psychoactive medication to Belgian society in 2012. The cost-of-illness framework with prevalence-based and human capital approach was applied. Three cost components were considered: direct, indirect and intangible costs related to substance misuse.
Results: The direct and indirect cost of addictive substances was estimated at 4.6 billion euros in Belgium (419 euros per capita or 1.19% of the GDP) and more than 515,000 healthy years are lost due to substance misuse. The Belgian social cost study reaffirms that alcohol and tobacco impose the highest cost to society compared to illegal drugs. Health problems are the main driver of the social cost of legal drugs. Law enforcement expenditure exceed the healthcare costs but only in the case of illegal drugs.
Conclusion: Estimating social costs of addictive substances is complex because it is difficult to determine to what extent the societal harm is caused by substances. It can be argued that social cost studies take only a 'snapshot' of the monetary consequences of substance misuse. Nevertheless, the current study offers the most comprehensive analysis thus far of the social costs of substance misuse in Belgium.

Introduction

Addictive substances are problem worldwide, contributing to the global burden of disease (Ezzati, Lopez, Rodgers, & Murray, 2004; Rehm, Taylor, & Room, 2006). The use and misuse of tobacco, alcohol, illicit drugs and psychoactive medication is associated with an increased risk of developing a number of diseases and injuries (Fischer, Bibby, & Bouchard, 2010; Rehm et al., 2006, 2003). Tobacco smoking, including second-hand smoking, accounted for 6.3 million deaths and 6.3% of disability-adjusted life years (DALYs) worldwide (Lim et al., 2013). Alcohol is responsible for 2.7 million deaths and 4.6% of all DALYs (Rehm et al., 2009). Illicit drugs accounted for 158,000 deaths and 0.8% of all DALYs (Degenhardt et al., 2013). This burden of disease due to addictive substances results in considerable healthcare costs, loss of productivity resulting from disability and premature mortality and reduced health-related quality of life (Rehm et al., 2006).

The impact of legal and illegal drugs is not restricted to public health. These substances also contribute to the financial and social burden of crime. Studies have consistently shown a strong relation between substance misuse and crime (Caulkins & Kleiman, 2011; Ellis, Beaver, & Wright, 2009). At the neighbourhood level, crimes rates and rates of substance use and social nuisance are strongly correlated (Boardman, Finch, Ellison, Williams, & Jackson, 2001), and at the individual level, drug use has been shown to play a role in pathways to serious offending (Le Blanc, 2006; Piquero, Farrington, & Blumstein, 2007); serious offenders are responsible for a substantial part of crime. The most obvious and straightforward connection can be found in the form of drug law violations such as trafficking and dealing (EMCDDA, 2007). A more complex relationship can be found between illicit drug and alcohol use and non-consensual crimes as the link between both is not defined by law but by the effect on behaviour (Caulkins & Kleiman, 2014;

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Table 1
Overview of crime and health cost items included.

Health cost items	Crime cost items
Direct costs	
■ Inpatient care: hospitalization (general and psychiatric hospital admissions), sheltered housing, psychiatric nursing homes, inpatient rehabilitation ■ Outpatient care: physician contacts (GPs, psychiatrists and medical specialists), day centers, medical-social care centers, mental health care centers and home-based nursing care ■ Social work services: general welfare centres, telephone and online support ■ Pharmaceuticals ■ Prevention (initiatives aimed at health promotion, road safety Institute), research and coordination (a.o. Belgian monitoring centre for drugs and drug addiction)	■ Investigation: federal and local police, customs and agencies (a.o. inspection of alcohol and tobacco retailers, agency tackling money laundering, inspections of non-smoking facilities) ■ Prosecution: public prosecutor's office and diversion measures ■ Sentencing: general courts, legal aid, drug treatment court ■ Sentence execution: correctional facilities, community youth institutions, offender guidance, electronic monitoring, sentencing court, and alternative sanctions and measures ■ Prevention (prevention plans), coordination (Criminal Policy, UNODC) and research ■ Property loss due to theft ■ Tax refunds for burglary prevention ■ Anticipation to theft
Indirect costs	
■ Disability: short-term disability (≤365 days) and long-term disability (>365 days) ■ Productivity losses due to premature mortality	■ Productivity losses due to premature mortality (deaths by homicide) and incarceration
Intangible costs	
■ Disability-adjusted life years (DALY's) due to diseases, injuries and traffic accidents	■ Disability-adjusted life years (DALY's) due to interpersonal violence

Pacula et al., 2013). All these crime types have an impact on the costs to the criminal justice system, lead to losses to productivity (due to incarceration) and have an impact on quality of life. The total cost of drug-related crime is considered to be enormous (Caulkins & Kleiman, 2011).

The health and crime costs attributable to legal and illegal drugs have been estimated nationally by multiple social cost studies. Most of these studies indicated that legal drugs impose the greatest cost to society because of the high healthcare costs for alcohol and tobacco related diseases (e.g. Collins & Lapsley, 2008; Fenoglio, Parel, & Kopp, 2003; Kopp, 2015; Rehm et al., 2007; Single, Robson, Xie, & Rehm, 1998). These studies also examined the composition of the social costs by comparing the healthcare costs with law enforcement and prevention costs. Looking at the social costs of illegal drugs specifically, most studies reported that law enforcement expenditure exceeds healthcare costs (Fenoglio et al., 2003; Potapchik & Popovich, 2014; Rehm et al., 2007).

This article presents an estimate of the total cost of addictive substances in Belgium for the year 2012 (Lievens et al., 2016). It is the first study to measure the social cost of four different substances: alcohol, illegal drugs, tobacco and psychoactive medication. The misuse of psychoactive pharmaceuticals such as antidepressants, sedatives, anxiolytics, and antipsychotics are included. Increasingly these substances are considered to be a public health concern since a high prevalence of non-medical prescription drug use has been reported in countries such as the United States, Canada, Australia, and some European countries (United Nations Office on Drugs and Crime, 2011). The inclusion of multiple types of psychoactive medication (antidepressants, analgesics, anxiolytics, sedatives, hypnotics) is unique (Johnson, Barnsdale, & McAuley, 2016), as previous studies have limited their scope to nonmedical use of prescription opioids (Hansen, Oster, Edelsberg, Woody, & Sullivan, 2011) or the misuse of prescription opioid analgesics (Birnbaum et al., 2006).

Moreover, the current study estimates tangible and intangible losses caused by substance misuse. The intangible losses (i.e. the impact on quality of life) are the costs that society and individuals are willing to pay to avoid such losses. These costs have not been studied in previous social cost estimations (except in Collins & Lapsley, 2008) as it was thought to be extremely difficult to estimate their monetary value because they have no market price (Single et al., 2003).[1] Furthermore, a wide variety of tangible costs (i.e. direct costs and productivity losses) are included. These include costs of an array of substance-attributable diseases and conditions, (traffic) accidents and crimes (more detail on included costs is provided in the methods section).

Methods

A cost-of-illness study (COI) was conducted to estimate the substance-attributable costs of addictive substances to Belgian society (Bloom, Bruno, Maman, & Jayadevappa, 2001). A wide variety of costs are taken into account, including private costs (e.g. payment that a smoker contributes to medical care). These costs are estimated by comparing the status quo to a hypothetical setting of no substance use that causes any harm.[2] Three cost components were considered: (1) direct costs, (2) indirect cost, and (3) intangible costs related to substance (mis)use. Direct costs are those related to the resources used for dealing with substance use and related medical conditions, accidents or their proximate effects (e.g. hospitalisation, physician consultations, medication use) and substance attributable crime and its consequences (e.g. police investigation, incarceration). Indirect costs are productivity losses due to disability because of premature mortality (as a consequence of a disease, accident or crime) or incarceration. Intangible costs are non-financial welfare costs borne by individuals, such as the value of lost (quality of) life (Moore & Caulkins,

[1] In Jarl et al. (2008), quality of life of alcohol consumers, their family and friends was evaluated by calculating quality-adjusted life years (QALYs), however no monetary valuation of these QALYs have been reported in this study.

[2] For psychoactive medication, a counterfactual with no harm resulting from pharmaceuticals is also preferred. Consequently, the costs are included for a hospitalisation due to overconsumption or a traffic accident due to psychoactive medication use. However, this conceptual framework does not allow an estimation of the cost of medical use (e.g. purchase of psychoactive medication at the pharmacy) or the cost of inadequate use (e.g. prescription for one dose antidepressants).