

Relationship between human development and drug use.

Human development index and drug use

Fernando Salazar Silva,¹ Jorge Ameth Villatoro Velázquez,² Natania Froylan Oliva Robles,² Marya Hynes,³ Maria de Marco³

Artículo original

SUMMARY

Human Development Index is currently considered a reference indicator to account for the social and economic situation experienced by countries.

Method

This study was conducted using the database from the study "Guiding Elements for Public Policies on Drugs in the Subregion -First Comparative Study on Drug Use and Associated Factors in Population of 15 to 64 years", held in Uruguay, Bolivia, Chile, Perú, Ecuador and Argentina. Target was urban population, from both sexes and of 12 to 65 years. Samples were stratified, three-staged and probabilistic. Sample sizes were theoretical with the inclusion of a non-response rate.

Results

Prevalence of drug consumption during last year and last month prior to the survey is higher in countries with high HDI compared with medium HDI countries. Lifetime prevalence of alcohol consumption is higher in countries with medium HDI compared with those with high HDI. There is less consumption in lifetime prevalence of legal drugs of countries with higher human development index and an equal rate of cigarette consumption.

Discussion

High development index implies that the inhabitants of a country have a long and healthy life, more access to knowledge and a decent standard of living. Population with a favorable view on these indicators are not only exposed, but they are also active drug users. The higher the index of human development is, the higher the drug consumption rates are, which indicate that although the human development index can reflect material or economic improvements, it is not necessarily translated in the human value of the people or society and does not assure quality of life or well-being.

Key words: Human development index, drug use, Latin America.

RESUMEN

El Índice de Desarrollo Humano (IDH) es un indicador de referencia para explicar la situación social y económica de un país.

Método

Este estudio se realizó con la base de datos del estudio "Elementos Orientadores para las Políticas Públicas sobre Drogas en la Subregión - Primer Estudio Comparativo sobre Consumo de Drogas y Factores Asociados en Población de 15 a 64 Años". La población objetivo fue urbana, de ambos sexos y de entre 12 y 65 años. Las muestras fueron estratificadas, trietápicas y probabilísticas. Se estimaron tamaños de muestras teóricos, incluyendo una tasa de no respuesta.

Resultados

La prevalencia de consumo de drogas en el último año y en el mes previo al estudio es mayor en los países con IDH alto en comparación con los países con IDH medio. La prevalencia de consumo de alcohol alguna vez en la vida es mayor en los países con IDH medio comparados con aquellos que tienen un IDH alto. En cuanto a las drogas legales, los países con un IDH alto presentan menores prevalencias alguna vez en la vida, situación similar cuando se considera el consumo de tabaco.

Discusión

Un IDH alto implica que los habitantes de un país tienen una vida larga y saludable, mayor acceso a la educación y un estándar de vida satisfactorio. La población con una puntuación favorable en estos indicadores no sólo está expuesta al consumo de drogas, sino que también es usuaria activa de éstas. Cuanto mayor Índice de Desarrollo Humano, mayor es la prevalencia de consumo de drogas, lo que indica que si bien el índice de desarrollo humano refleja mejoras en la economía o bienes materiales, no necesariamente se traduce en valores humanos para la persona o la sociedad y no garantizan una buena calidad de vida o el bienestar.

Palabras clave: Índice de Desarrollo Humano, uso de drogas, Latinoamérica.

¹ Universidad Peruana Cayetano Heredia.

² Instituto Nacional de Psiquiatría Ramón de la Fuente Muñiz, Mexico.

³ Inter-American Drug Abuse Control Commission.

Correspondence: Doctor Fernando Salazar Silva. Facultad de Salud Pública y Administración de la Universidad Peruana Cayetano Heredia. Av. Honorio Delgado 430, Lima 31, Perú. E-mail: fernando.salazar.s@upch.pe

Received: July 10, 2013. Accepted: November 12, 2013.

INTRODUCTION

Human development is a process which seeks to expand opportunities of human beings¹ to create an environment of possibilities in which people can live long, healthy, and creative lives.² Based on the development model, Mahbul ul Haq layed out the basis to evaluate human development in all countries.³ The basic idea was raised on the argument that economic growth alone does not ensure a better quality of life³ and that people are the true wealth of a nation.² In this context, the United Nations have spent nearly twenty years carrying out empirical measurements of human development in different countries in the Latin American region.

The Human Development Index (HDI) is currently considered a reference indicator to account for the social and economic situation of countries. The HDI includes three criteria: a long and healthy life assessed by life expectancy at birth, access to knowledge currently measured by calculating the adult literacy rate combined with the total school enrollment ratio in primary, secondary and tertiary education, and a dignified living standard measured by the gross domestic product (GDP) per capita, expressed through the purchasing power parity (PPP) in dollars.⁴

Development achievements in countries of the region are annually monitored and they explain a part of the social phenomena that affects the reference population. Thereby, a country with low HDI of less than 0.5 is probably affected by poverty and illiteracy, which generate inadequate health conditions or exposure to certain risk factors. In contrast, it is possible that countries with high HDI of 0.8 or more are exposed to certain risk factors related to wealth or economic access.

However, different human development reports state that material wealth is not a synonym of good quality of life. "The development can be understood as a process of expanding the real freedoms people enjoy",⁵ but these freedoms can be misunderstood causing major risk factors, which is typical of large cities in development.

In the twenty-first century, concerns about national security, armed conflicts, terrorism, weapon sales, and drug trafficking⁶ overwhelm many nations because they are accompanied by corruption, violence, and drug consumption. The United Nations Office on Drugs and Crime (UNODC) says that commercial transactions revolving around drugs are evident in "urban settings controlled by criminal groups", and that this problematic will worsen in megacities because the issue of drugs is human and not economic. Usually, addicts are not engendered in marginal areas but rather in mainstream populations that also give rise to mafias.⁶

Currently, large cities are a reflection of the economic and social growth of a region, where the availability of drugs and violence rates are increasing. One survey found that in eight Latin American countries, excepting Perú, people perceived that drug use was increasing; Venezuela and Chile

are highlighted in these findings.⁷ Coincidentally, Chile and Venezuela are among the countries of the region that are considered to have high human development indexes according to the HDI² ranking. At the same time, Chile is also the country with the highest rate of cannabis consumption of the region in high school population (12.7%), and has the second highest rate of ecstasy use (1.6%).⁶

When comparing drug consumption in different countries according to their HDI, apparently there is a correlation between drug use prevalence and development. For example, Paraguay and Bolivia, placed in positions 91 and 115 of the HDI ranking, report cocaine, cannabis and ecstasy use rates below the ones from Colombia and Perú, located in positions 70 and 82 in the same report.^{2,6}

The link between HDI and drug use has not been studied thoroughly. The present article aims to examine the relationship between HDI and drug use in six Latin American countries. Recognizing this relationship will contribute to a better understanding of the social and economic factors at play in drug use in the Latin American region. We expect this information will help guide political efforts and may provide the basis to develop improved indicators for addressing the drug problem in our region.

MATERIAL AND METHODS

This study was conducted using the database obtained from the study "Guiding Elements for Public Policies on Drugs in the Subregion -First Comparative Study on Drug Use and Associated Factors in Population of 15 to 64 years",⁸ carried out in Uruguay, Bolivia, Chile, Perú, Ecuador, and Argentina. In this study, target was male and female urban population, from 12 to 65 years old. Seventy percent of the population consisted of urban settlements and cities. The sample from Uruguay included localities of 10 000 inhabitants or more, Bolivia and Chile samples included localities of 30 000 and above inhabitants (excepting, Aysen in Chile), Perú localities were of 20 000 or more inhabitants, Ecuador 50 000 and more inhabitants and the locations of the East Region included localities of 24 000 and more inhabitants, Argentina included localities of 80 000 or more inhabitants, including two provincial capitals of smaller size.

In all countries the sample was stratified, three-staged and probabilistic. Sample sizes were theoretical with the additional inclusion of a non-response rate (table 1).

The countries were grouped in medium level: Bolivia, Ecuador and Perú, with HDI between 0.5 and 0.8, and high level: Argentina, Chile and Uruguay, with HDI higher than 0.8. Logistic regressions considering the sample design and controlled by age and sex were used to assess the association between lifetime, last year and last month drug prevalence.

All participating countries except Chile piloted the instrument and methodology. Chile did not participate in this

Table 1. Size of sample and population of 12 to 65 years represented by country

Country	Theoric Sample ^a	Effective Sample ^b	Represented Population
Argentina	19,084	13,493	17,376,574
Bolivia	14,166	9,533	3,254,256
Chile	23,796	17,192	8,876,262
Ecuador	10,610	7,954	4,494,119
Peru	12,884	11,825	11,318,495
Uruguay	22,000	7,000	1,602,844
Total	102,540	66,997	46,992,550

^a Theoric Sample = Homes to be visited.
^b Effective Sample = Effective number of surveys made.
 Source: First Comparative Study on Drug Consumption and Associated Factors Among the General Population of (15-64 Years Old).

phase because it already had a standardized questionnaire. All applications were conducted by people trained for the task, and only Chile included the possibility to answer the drug consumption section in a self-administered way but this modality was chosen by no more than 6% of respondents in that country. Each country was able to add modules to the questionnaire according to their specific needs, while maintaining a common and comparable core questionnaire.

RESULTS

Table 2 shows that prevalence of drug consumption during the month prior to the survey is higher in countries with high HDI compared with medium HDI countries. The same situation occurs with the prevalence of drug consumption in the last year shown in table 3.

Table 4 shows that lifetime prevalence of alcohol consumption is higher in countries with medium HDI compared to those with high HDI, but in all of the other drugs, lifetime prevalence is higher in countries with high HDI compared to the ones with medium HDI.

To evaluate the effect of HDI with drug use, several logistic regressions were performed, taking into account the sample design and controlled by age and sex. Tables 5 and 6 show that consumption in the last month and last year is higher in countries with a high level of human development

Table 2. Drug use last month prevalence according to Human Development Index. 2009

Drug	Human Development Index					
	High			Medium		
	CI 95%			CI 95%		
	Average	Sup.Lim.	Inf.Lim.	Average	Sup.Lim.	Inf.Lim.
Alcohol	50.44	49.94	50.95	33.41	32.87	33.95
Cigarettes	35.31	34.83	35.79	18.35	17.91	18.80
Marijuana	3.18	3.00	3.36	0.38	0.31	0.46
Cocaine	0.83	0.74	0.92	0.11	0.07	0.15
Cocaine paste	0.19	0.14	0.23	0.09	0.05	0.12

Table 3. Drug use last month prevalence according to Human Development Index. 2009

Drug	Human Development Index					
	High			Medium		
	CI 95%			CI 95%		
	Average	Sup.Lim.	Inf.Lim.	Average	Sup.Lim.	Inf.Lim.
Alcohol	65.56	65.08	66.04	58.06	57.49	58.62
Cigarettes	39.45	38.95	39.94	29.64	29.12	30.16
Marijuana	5.38	5.15	5.61	0.89	0.78	0.99
Cocaine	1.55	1.42	1.67	0.25	0.19	0.30
Cocaine paste	0.44	0.37	0.51	0.17	0.12	0.21

Table 4. Drug use lifetime prevalence according to Human Development Index. 2009

Drug	Human Development Index					
	High			Medium		
	CI 95%			CI 95%		
	Average	Sup.Lim.	Inf.Lim.	Average	Sup.Lim.	Inf.Lim.
Alcohol	78.19	77.77	78.60	79.82	79.36	80.28
Cigarettes	58.79	58.30	59.29	53.41	52.84	53.98
Marijuana	16.39	16.01	16.76	4.82	4.57	5.06
Cocaine	5.35	5.12	5.58	1.78	1.62	1.93
Cocaine paste	1.65	1.52	1.78	1.04	0.92	1.16

Table 5. Association between drug use, last month prevalence and Human Development Index. 2009

Last month consumption of:**	OR*	p	CI 95%	
Alcohol	1.26	0.000	1.20	1.33
Cigarettes	1.34	0.000	1.26	1.42
Marijuana	11.33	0.000	8.58	14.96
Cocaine	7.31	0.000	4.33	12.36
Cocaine paste	1.86	0.072	0.95	3.67
Any illegal drug	5.04	0.000	3.21	7.91

* Reference group was the one with medium level of human development index.
 ** A logistic regression controlled by age and sex was made for each one of the drugs.

Table 6. Association between drug use, last year prevalence and Human Development Index. 2009

Last year prevalence of:**	OR*	p	CI 95%	
Alcohol	1.26	0.000	1.20	1.33
Cigarettes	1.34	0.000	1.26	1.42
Marijuana	6.17	0.000	3.43	11.10
Cocaine	7.25	0.000	5.08	10.35
Cocaine paste	1.90	0.008	1.18	3.04
Any illegal drug	5.04	0.000	3.21	7.91

* Reference group was the one with medium level of human development index.
 ** A logistic regression controlled by age and sex was made for each one of the drugs.

compared with the ones that have medium human development index, excepting cocaine paste in which there is no difference between both groups of countries.

Table 7. Association between drug use lifetime prevalence and Human Development Index. 2009

Lifetime prevalence of:**	OR*	p	IC 95%	
Alcohol	0.77	0.000	0.73	0.83
Cigarettes	1.04	0.114	0.99	1.10
Marijuana	4.64	0.000	3.92	5.49
Cocaine	4.22	0.000	3.56	5.00
Cocaine paste	1.41	0.003	1.12	1.77
Any illegal drug	3.71	0.000	3.24	4.25

* Reference group was the one with medium level of human development index.
 ** A logistic regression controlled by age and sex was made for each one of the drugs.

Table 7 shows the same trend with the exception that, in relation to legal drugs, there is less lifetime prevalence consumption in countries with higher human development index and an equal rate of cigarette consumption.

DISCUSSION

As countries develop and social economic power increases, governments face new social and public health challenges. Over the past few decades, many Latin American countries have gone through a continuous period of development and improved their socio-economic conditions.⁹ Although ideally all aspects of development should move forward together, reality shows this process is gradual and uneven, resulting in public health issues that the sociopolitical framework may be unprepared to address. Just as a rise in economic means may translate into issues such as obesity due to increased access to food,¹⁰ increased wealth may result in greater access to drugs, posing risk for a potential drug epidemic in countries where drug use was previously low and not considered a priority.

According to World Bank reports,¹¹ Latin America is a region composed by countries with low, middle, and upper middle incomes based on their gross domestic product (GDP). In 2006, when the information of this article was gathered, Chile, Argentina, and Uruguay were considered countries with high HDI; while Perú, Bolivia, and Ecuador, were considered countries with medium HDI.² These differences may explain, to some extent, rising public health issues such as drug use. Difference in drug use prevalence is notable between high and middle HDI countries, as shown on the results of this study. The average prevalence of licit or illicit drugs consumption is higher in countries with high HDI, and lower in countries with medium HDI.

A possible issue at play may be increased longevity. As humans mature they may experience demands, challenges, and frustrations that generate stress, peer pressure or other factors that influence drug use choices. An Epidemiological Survey on Alcohol and Related Conditions (NESARC) conducted in 2001-2002 found that 70% of young adults in the

United States (approximately 19 million people) consumed alcohol in the year preceding the study.¹² In 2008, the National Institute on Alcohol Abuse and Alcoholism (NIAAA) warned that people born in recent years tend to drink more than older generations and that adding the fact that they live longer, a continued increased in alcohol consumption rates within populations may be expected.¹³

The social fabric of a country shaped by the trust between social actors, their behaviors and norms, also plays an important role in drug use.¹⁴ If this social fabric is corrupt, violent, and unsafe, the well-being of the population is endangered.¹⁵ The social fabric surrounding drug use is frequently characterized by delinquency, corruption, social and political violence.⁷ These factors make it difficult for countries to effectively intervene on rising drug epidemics. For example, Argentina, with the highest HDI in Latin America, is a country with one of the highest drug use prevalences in the region and a growing market for illegal drugs. This high drug use combined with inadequate political infrastructure and adding institutional gaps lead to the difficulty of effectively implementing a comprehensive public health policy on drugs.¹⁶

A possible explanation for higher drug use prevalence rates in high HDI countries might be related to perceived access to drugs, which has also been shown to play a role as a predictor of drug consumption.¹⁷ The three high HDI countries, Argentina, Chile and Uruguay, are known drug transit areas* in contrast to middle HDI countries, Bolivia, Colombia and Perú, which are known to be drug-producing countries. Remarkably, a perceived access to drugs is higher in Argentina, Chile and Uruguay such as the prevalences of drug use are. It is difficult to argue that drug producing countries have fewer drugs available than transit countries. Nevertheless, countries with lower HDI like Colombia and Perú have both low consumption rates and low perception of access to drugs. The discriminating factor in both groups of countries is the HDI. Our data support the idea that perception of access correlates with HDI, which in turn may act as another potential predictor of drug use.

Wealth may play a role in drug consumption through an increased purchasing power of the citizens of countries with high HDI. According to Dreyfus, "criminal activities are structured around the demand of illegal products in the wealthier regions of the world, which is the case of drug trafficking".²⁰ This is reasonable given that once basic needs are covered surplus money can be spent on non-essential items or activities such as drugs. On the other hand, countries with medium HDI have lower purchasing power that limits their expenses to basic/immediate priorities. In Perú, for example, nearly 50% of the population is below the poverty line.

* The report from March 2008 of the International Narcotics Control Strategy (INCSR) from United States Department¹⁸ characterized Chile as a drug transit country and Argentina as a transition point to European countries. In the case of Uruguay, the report only mentioned its "vulnerability" to drug trafficking because of its permeable borders with Brazil and free trade zones.¹⁹

The same is for 62.7% of the population in Bolivia, where nearly a quarter of the population lives on a dollar daily and 16% of the population does not reach 40 years of age.² In this context, drug demand may be associated with purchasing power, a situation that is evidenced by the 15% prevalence of past month tobacco consumption in lagging countries with high HDI.

Although good for society as a whole, high HDI may have negative consequences, which must always be taken into account when approaching public health policy. Whether such consequences outweigh the overall gains of development, each society will have to examine on their own. However, we must not ignore the potential social problems that may accompany development as society transitions. Developing countries, with increased access to economic opportunity, are at higher risk of gestating drug epidemics than countries that have experienced less development or less wealth increase. The present paper does not imply that HDI is the cause of drug consumption but rather that the HDI might be an indicator for potential drug use. Given the developmental process that most countries in the region are experiencing, drug consumption has become a public health priority that demands active intervention.²¹

ACKNOWLEDGEMENTS

The National Drug Commissions of: Argentina - Secretaría de Programación para la Prevención de la Drogadicción y la Lucha contra el Narcotráfico (SEDRONAR). Bolivia - Consejo Nacional de Lucha Contra el Tráfico Ilícito de Drogas (CONALTID). Chile - Consejo Nacional para el Control de Estupeficientes (CONACE). Ecuador - Consejo Nacional de Control de Sustancias Estupeficientes y Psicotrópicos (CONSEP). Perú - Comisión Nacional para el Desarrollo y Vida sin Drogas (DEVIDA). Uruguay - Junta Nacional de Drogas (JND). The United Nations Office on Drugs and Crime (UNODC). The Inter-American Drug Abuse Control Commission (CICAD/OAS) and the Inter-American Observatory on Drugs (OID). The Red Latinoamericana de Investigadores en Drogas (REDLA).

REFERENCES

1. Programa de las Naciones Unidas para el Desarrollo. Informe sobre desarrollo humano 1990. Primera edición. Bogotá: Tercer Mundo Editores; 1990.
2. Programa de las Naciones Unidas para el Desarrollo [PNUD]. Informe sobre desarrollo humano 2006. Barcelona: Aedos; 2206.
3. ul Haq M. Reflections on human development. New York and Oxford: Oxford University Press; 1995.
4. Programa de las Naciones Unidas para el Desarrollo [PNUD]. Human Development Indices. A statistical update 2008. New York: Green Ink; 2008.
5. Sen A. Development as freedom. Oxford: Oxford University Press; 1999.
6. Oficina de las Naciones Unidas contra las Drogas y el Delito [ONUDD]. Informe Mundial Sobre Drogas 2009; s.f.
7. Hopenhayn M. Droga y violencia: Fantasmas de la nueva metrópoli latinoamericana. Polis, Revista Académica Universidad Bolivariana 2002;1(3):1-7.
8. ONUDD, la Comisión Interamericana para el Control del Abuso de Drogas (CICAD/OEA), la Secretaría de Programación para la Prevención de la Drogadicción y la Lucha contra el Narcotráfico (SEDRONAR), el Consejo Nacional de Control de Estupeficientes (CONACE), Viceministerio de Defensa Social, Secretaría Técnica (CONALTID), el Consejo Nacional de Control de Sustancias Estupeficientes y Psicotrópicos (CONSEP), la Comisión Nacional para el Desarrollo y Vida Sin Drogas (DEVIDA) y la Junta Nacional de Drogas (JND). Elementos orientadores para las políticas públicas sobre drogas en la subregión -Primer estudio comparativo sobre consumo de drogas y factores asociados en población de 15 a 64 años. Oficina contra la Droga y el Delito. Primera edición. Lima Perú: Tetis Graf; 2008.
9. Bulmer-Thomas V. The economic history of Latin America since independence. Cambridge: Cambridge University Press; 2003.
10. Miranda JJ, Kinra S, Casas JP, Davey G et al. Non-communicable diseases in low- and middle-income countries: context, determinants, and health policy. *Trop Med Int Health* 2008;13(10):1225-1234.
11. The World Bank: Europa technologies recovered on March 2010, from <http://geo.worldbank.org/>.
12. National Institutes of Health. Young adult drinking. Alcohol alert 2006. Recovered on April 2006 from <http://pubs.niaaa.nih.gov/publications/aa68/aa68.htm>.
13. National Institutes of Health. Senior adults and alcohol: A National Health Issue. Alcohol alert. Recovered on January 2008 from <http://pubs.niaaa.nih.gov/publications/AA74/AA74.pdf>.
14. Putnam RD. Bowling alone: America's Declining Social Capital. *J Democracy*, 1995;6(1):65-78.
15. Kliksberg B. Más ética, más desarrollo. Buenos Aires: Temas Grupo Editorial SRL; 2004.
16. Sain MF. El fracaso del control de las drogas ilegales en Argentina. 2009. Recovered on March 2010, from http://www.nuso.org/upload/articulos/3626_1.pdf.
17. Lejckova P, Csemy L. Risk perception and attitudes of young people towards drug use. *Adiktologie* 2005;5(1):34-48.
18. Bureau of International Narcotics and Law Enforcement Affairs. International Narcotics Control Strategy Report. Washington: United States Department of State; 2008.
19. Erghougassian KD. El crimen organizado. En: El Cono Sur. Un mapeo de los flujos de las transacciones ilícitas en Argentina, Uruguay, Paraguay y Chile. Buenos Aires: OAS; 2008.
20. Dreyfus P. Vino viejo en odres todavía más viejos: Tendencias regionales del Crimen organizado en Latinoamérica en la primera década del siglo XXI y más allá. Anuario 2009 de la Seguridad regional en América Latina y el Caribe. Bogotá: Gente nueva; 2009.
21. United Nations Office on Drugs and Crime [UNODC]. World drug report 2009. New York: United Nations; 2009.

Declaration of conflict interest: None