Soma-tizing America

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Some have deluded themselves into believing that 1984 has come and gone, and that Aldous Huxley's *Brave New World* was a 1932 novelist's far-fetched anti-fascist musings.

But Huxley may have set the stage for our love affair with mind-altering pharmaceuticals. *Brave New World*'s government maintains control by making the citizens so happy that they don't care about their personal liberty. Their tool is "soma," a pill that is simultaneously a stimulant, a narcotic, and a hallucinogen. If "anything unpleasant should somehow happen, there's always soma to give you a holiday from the facts."[1]

Soma tapped into man's desire to avoid suffering whether physical or emotional. Throughout the world, alcohol, opium, mushrooms, and coca leaves have been used and abused for at least 9,000 years.[2] During our American Civil War, opiates were a boon to injured soldiers. Soon morphine became an ingredient in most health tonics. Cocaine was also widely used for its ability to generate feelings of well-being. Cocaine was even used to cure morphine addiction. It seems cocaine and morphine were only the beginning.

Prescription Drugs by the Numbers

Nearly 70 percent of Americans take at least one prescription drug. The statistics from the Rochester Epidemiology Project in Olmsted County, Minnesota, which are comparable to those elsewhere in the U.S., reveal that the top three medications consumed are antibiotics (17%), antidepressants (13%), and opioids (11%).[3] Antidepressants and opioids were the most commonly prescribed among young and middle-aged adults.

Fifty percent of patients who take prescription drugs have prescriptions from two drug groups, and 20 percent are on five or more prescription medications (polypharmacy).[3] And according to the National Health and Nutrition Examination Survey (NHANES) the use of polypharmacy has doubled over the last 12 years.[4]

Antidepressants

About one in 10 Americans aged 12 and over and nearly one-quarter of women between ages 50 and 64 take antidepressants.[3] And unlike many other socioeconomic health parameters, antidepressant use does not vary by income status.[5] Fourteen percent had taken the antidepressant for 10 years or more and, disturbingly, more than half of them had not seen a mental health professional in the past year. These statistics represent a doubling of antidepressant use over the last 12 years.[4]

These data cause many to ask whether antidepressants are being overused. Indeed, many antidepressant users have no current depressive symptoms. Of course, this group includes persons whose depression symptoms are being treated successfully. Additionally, there are legitimate off-label uses of these medications for non-depressive conditions.[5] Serotonin reuptake inhibitors (SSRIs), the dominant class of antidepressant drugs, are used to treat abuse and dependence, attention-deficit/hyperactivity disorder (ADHD) in children and adolescents, anxiety disorders, autism in children, bipolar disorder, eating disorders, fibromyalgia, neuropathic pain, obsessive-compulsive disorder, and premenstrual dysphoric disorder. Some physicians are starting to use antidepressants for arthritis, deficits caused by stroke, diabetic neuropathy, hot flashes, irritable bowel syndrome, migraine, neurocardiogenic syncope, panic disorder, post-traumatic stress disorder, and premature ejaculation.[6]

Despite the numerous potential indications, overprescription remains an issue. A 2009 study found that nearly 80 percent of antidepressant prescriptions are written by nonpsychiatrists.[7] Many of these prescriptions are written without a specific diagnosis. And a 2015 study concluded that "many individuals who are prescribed and use antidepressant medications may not have met criteria for mental disorders."[8] Specifically, among the users of antidepressant medications, 69 percent never met the evidence-based indications for major depressive disorder, and 38 percent never met those for obsessive-compulsive disorder, panic disorder, social phobia, or generalized anxiety disorder.

Further, the effectiveness of many antidepressants was called into question by data from all clinical trials submitted to the U.S. Food and Drug Administration (FDA) for citalopram (Celexa®), fluoxetine (Prozac®), venlafaxine (Effexor®), paroxetine (Paxil®), and nefazodone (Serzone®), the six most widely prescribed antidepressants. The data showed that the total effect of these antidepressants was below the recommended criteria for clinical significance, and that there was virtually no difference in the improvement scores for drug or placebo. Only the most severely depressed patients showed clinically significant improvement.[9]

Opioids

Sales of opioid or narcotic painkillers have quadrupled since 1999.[10] According to the Centers for Disease Control and Prevention (CDC), enough prescription painkillers were prescribed in 2010 to medicate every American adult every four hours around the clock for a month.[10]

These drugs have consequences. In 2013, more than 16,000 people died in the U.S. from overdoses related to opioid pain relievers, four times the number who died in 1999.[11] Individuals who died of drug overdoses often had a combination of benzodiazepines and opioid painkillers in their bodies.[10]

One has to wonder why 15 percent of pregnant women are prescribed an opioid during their pregnancy.[12] In line with the increased use of opioids during pregnancy, there was a five-fold increase in the incidence of neonatal abstinence syndrome (NAS) in the U.S. from 2000 to 2012.[13] In 2012 one baby suffering from opiate withdrawal was born every 25 minutes.[13]

Illicit Drugs

The U.S. has about 7,800 new illicit drug users per day.[14] In 2014, more than 10 percent of Americans age 12 or older (27 million) had used an illicit drug[15] in the past month.[16] Marijuana (cannabis) tops the list with 22 million users, and nonmedically used pain relievers came in second. Other commonly abused drugs include alcohol, ayahuasca, bath salts (synthetic cathinones), cocaine, DMT, GHB, hallucinogens, heroin, inhalants, ketamine, khat, LSD, MDMA (Ecstasy/Molly), Mescaline (peyote), methamphetamine, over-the-counter cough/cold medicines (dextromethorphan or DMX), PCP, prescription opioids, prescription sedatives (tranquilizers, depressants), prescription stimulants, psilocybin, Rohypnol® (flunitrazepam), salvia, steroids (anabolic), synthetic cannabinoids ("K2"/"Spice"), and tobacco.[15]

Fifty-two million people age 12 and over have used prescription drugs nonmedically at some point in their lives.[10] Prescription opioid abuse not only can lead to overdose, but is costly in economic terms. Nonmedical use of opioid pain relievers costs insurance companies an estimated $72.5 billion annually in health benefits payouts.[17] This correspondingly contributes to the rising prices of our insurance premiums. Additionally, $27 billion of economic losses are attributed to lost workplace productivity.[10]

Most people use drugs for the first time when they are teenagers, and more than half start with marijuana.[14] Teenage use is expected but troubling due to possible long-term consequences. A recent study from New Zealand followed more than 1,000 children aged 13 to 39.[18] Researchers found that persistent cannabis use was associated with neuropsychological decline broadly across domains of functioning, even after controlling for years of education. Worse yet, cessation of cannabis use did not fully restore neuropsychological functioning among adolescent-onset cannabis users.

For Our Elders, Chemical Restraints

Despite black-box warnings[19,20] that antipsychotics have an increased risk of death compared to placebo, a recent Government Accountability Office (GAO) study found that one-third of nursing home patients with dementia were prescribed an antipsychotic medication as an off-label use to treat behavioral symptoms.[21] These drugs include aripiprazole (Abilify®), clozapine (Clozaril®), lurasidone (Latuda®), olanzapine (Zyprexa®), olanzapine/fluoxetine (Symbyax®), paliperidone (Invega®), quetiapine (Seroquel®), risperidone (Risperdal®), ziprasidone (Geodon®), asenapine maleate (Saphris®), and iloperidone (Fanapt®). Not surprisingly, low nursing-home staff levels lead to higher antipsychotic drug use.

Suffer the Children

Experimenting with alcohol may be a rite of passage for some adolescents. Indeed, the Health and Human Services 2014 National Survey revealed that 23 percent of under-age people (aged 12–20) in the U.S. are current alcohol users. Of these, 61 percent are binge alcohol users, and about one in seven are heavy alcohol users.[16]

The urge to seek "altered states" may be a part of growing up, but we must not exacerbate this propensity by overmedicating children.

Childhood Antipsychotics

Psychotropic drugs affect brain activity associated with both mental processes and behavior. This can lead to indifference and apathy, and of course the medications make troubled children easier to manage.

Millions of Medicaid and private insurance records for children in seven large states, including New York, Texas, and California, were examined for the years 2001 and 2004.[22] Data showed that children covered by Medicaid are given antipsychotic medicines at a rate four times higher than children whose parents have private insurance. Moreover, the children on Medicaid are more likely to receive the drugs for less severe conditions than their privately insured counterparts.

While it is understandable that low-income children would have a higher rate of mental problems, this alone cannot explain the four-to-one disparity in prescribing antipsychotics. One contributing factor may be the difficulty poor families have in incorporating therapy sessions into their lives. It is certainly more efficient to medicate children than to pay for family counseling. The gravitation toward medicating is compounded by the fact that Medicaid often

pays much less for counseling therapy than do private insurers.

Drugging the Children in "the System"

Because of the poorly understood risks and the high rates of psychotropic drug use among foster children and poor children, the GAO launched an investigation. Medicaid and foster care records from 2008 in five representative states were examined. The audit (see Table 1) found that 39 percent of foster children are being prescribed psychiatric medications in contrast to 10 percent of non-foster children.[23] Shockingly, this number includes children under age five and infants, although GAO's experts opined that there was no established indication for drug use for mental health conditions in infants, and that it could result in serious adverse effects.[23, p 7] The CDC reported in 2014 that as many as 10,000 toddlers may be receiving psychostimulant medication such as methylphenidate (Ritalin®).[7]

Table 1. Drugs Audited in Foster and Non-foster Children[23]

Indication or Drug Type	Drugs: Generic (Brand Name)
ADHD	Atomoxetine (Strattera®) Lisdexamfetamine dimesylate (Vyvanse®) Methylphenidate (Ritalin®, Concerta®) Amphetamine (Adderall®) Dextroamphetamine (Dexedrine®, Dextrostat®)
Anti-anxiety	Clonazepam (Klonopin®) Lorazepam (Ativan®) Alprazolam (Xanax®)
Antidepressants	Fluoxetine (Prozac®) Citalopram (Celexa®) Sertraline (Zoloft®) Paroxetine (Paxil®) Escitalopram (Lexapro®) Venlafaxine (Effexor®) Duloxetine (Cymbalta®) Bupropion (Wellbutrin®)
Antipsychotics	Chlorpromazine (Thorazine®) Haloperidol (Haldol®) Risperidone (Risperdal®) Olanzapine (Zyprexa®) Quetiapine (Seroquel®) Ziprasidone (Geodon®) Aripiprazole (Abilify®)
Hypnotics	Quazepam (Doral®) Zolpidem (Ambien®) Eszopiclone (Lunesta®)
Mood stabilizers	Lithium Divalproex sodium (Depakote®) Carbamazepine (Tegretol®) Lamotrigine (Lamictal®) Oxcarbazepine (Trileptal®)

Although the actual percentages of children who received five or more psychiatric drugs concurrently were low, foster children were on average 25 times more likely than non-foster children to be prescribed five or more medications, despite the increased medical risk for children. Foster children were also more than nine times more likely than non-foster children to be prescribed drugs in doses exceeding FDA-approved maximum levels.[23]

Certainly, children entering foster care have more emotional and behavioral problems than do non-foster children, but as with the Medicaid study, drugs may be viewed as more efficient than additional behavioral therapy.

Attention Deficit Hyperactivity Disorder (ADHD)

According to the CDC's latest statistics, 11 percent of U.S. chilren aged 4 to 17 had been diagnosed with ADHD.[24] Half of these children were diagnosed by age 6. Of the children with current ADHD, 69 percent were taking medications, including amphetamine and dextroamphetamine (Adderall®), methylphenidate (Concerta®), lisdexamfetamine (Vyvanse®), modafinil (Provigil®), or armodafinil (Nuvigil®).[25] Fewer than one in three children with ADHD received both medication and behavioral therapy, the preferred treatment approach for children age 6 and older.[24]

According to the United Nations and the U.S. Drug Enforcement Administration (DEA), the U.S. produces and consumes about 85 percent of the world's methylphenidate (Ritalin®).[26] Given those numbers, PBS's *Frontline* delved into the question of whether ADHD medications were really necessary—and safe—for young children, or merely "a harried nation's quick fix for annoying, yet age-appropriate, behavior."[27] One psychiatrist's perception is that we are re-engineering the personalities and behaviors of a percentage of our children to make them function better in society.[28] Others believe that some children who carry the diagnosis are merely acting like children, albeit some more strong-willed than others.

The question of whether ADHD is overdiagnosed may be less important than the issue of whether such children, once diagnosed, are medicated to their detriment. It is well known that amphetamines have high potential for abuse. Moreover, a recent study shows

that prior sensitization with a psychostimulant increases the risk for subsequent tobacco and cocaine dependence.[29]

Lessons from History: China's Opium Wars

Britain's flooding China with opium in the 18th and 19th centuries provides insight into the destructiveness of mass drug use. To correct its trade deficit with China, in 1781 Britain began smuggling prohibited Indian opium. The sales increased exponentially, and by 1838 the British were selling 1,400 tons of opium per year to China.

By the 1830s, nearly all men in the coastal regions under 40 years of age, regardless of social class, smoked opium. A British physician practicing in Canton estimated the number at 12 million. Even the Chinese National Army and the imperial household guard were "infected with the deadly craving."[30] Productivity was down, the standard of living fell, and the country was destabilized. China's special anti-opium commissioner Lin Zexu calculated that the Chinese spent more on opium than the entire spending by the imperial government.[31]

Frustrated, Lin Zexu wrote to Queen Victoria, appealing to the British sense of justice and compassion:

> We have heard that in your own country opium is prohibited with the utmost strictness and severity: this is a strong proof that you know full well how hurtful it is to mankind. Since then you do not permit it to injure your own country, you ought not to have the injurious drug transferred to another country.[32]

When he had no response from the Queen, Lin Zexu began seizing opium. Ultimately China's seizure of opium shipments without compensation led to two wars that Britain handily won, resulting in its garnering 21 million taels of silver, five new Chinese ports of commerce, and the cession of Hong Kong.

The New Normal?

Scores of undeniable facts confirm that pharmaceuticals have become woven into the fabric of our lives. But we have to beware of creating self-inflicted opium wars. After all, brain imaging studies of drug-addicted individuals show changes in areas of the brain that are critical to judgment, decision making, learning and memory, and behavior control.[33]

There is no question that bodily pain and psychological problems are real and can be life-changing. However, purveyors of pharmaceuticals have convinced many basically healthy people that an unchanging affect is preferable to experiencing life's bumps in the road.

There is no question that medications have saved countless lives. But for all their known benefits, we do not want mind-altering medications to become a quick fix when effective but more labor-intensive treatments are available. Unfortunately, the number of professionals trained in counseling as well as judicious use of medications is insufficient to meet the demand. Psychiatrists, and in particular child psychiatrists, are in short supply. According to the American Academy of Child and Adolescent Psychiatrists, there are approximately 8,300 practicing child and adolescent psychiatrists in the U.S.—and more than 15 million youths in need of one.[34,35]

Most worrisome is the use of mind-altering medications in young children. Remember, Vladimir Lenin said, "Give me just one generation of youth, and I'll transform the whole world."[36] It seems the transformation has begun. A growing number of "übersmart" professionals are "micro-dosing" themselves with LSD as a creativity enhancer. One user explained, "It's an extremely healthy alternative to Adderall," and it allows one "to feel a little bit of energy lift, a little bit of insight, but not so much that you are tripping."[37] Almost like soma.

A Footnote for Physicians

More than 50 years ago in Berkeley, California, the heart of the "free speech movement," Aldous Huxley presciently opined:

> There will be, in the next generation or so, a pharmacological method of making people love their servitude, and producing dictatorship without tears, so to speak, producing a kind of painless concentration camp for entire societies, so that people will in fact have their liberties taken away from them, but will rather enjoy it, because they will be distracted from any desire to rebel by propaganda or brainwashing, or brainwashing enhanced by pharmacological methods.[38]

We physicians see that our profession has become increasingly bureaucratic. Are we becoming soma-tized by a "healthcare system" that inundates us with so many regulations that we become numb to them? That we give up resisting the intrusion into our lives? That we are willing to take a "holiday from the facts"? We have become all too ready to trade liberty for the lure of a steady paycheck. But as many have discovered, giving in sends the message that we are fungible, controllable, and ultimately disposable.

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REFERENCES

1. Huxley A. *Brave New World*. HarperCollins Perennial Classics; 1969:237-238.
2. Crocq M-A. Historical and cultural aspects of man's relationship with addictive drugs. *Dialogues Clin Neurosci* 2007;9:355-361. Available at: www.ncbi.nlm.nih.gov/pmc/articles/PMC3202501/. Accessed Nov 5, 2015.
3. Zhong W, Maradit-Kremers H, St. Sauver JL, et al. Age and sex patterns of drug prescribing in a defined American population. *Mayo Clinic Proc* 2013:88:697-707. Available at: www.mayoclinicproceedings.org/article/S0025-6196(13)00357-1/abstract. Accessed Nov 13, 2015.

4. Kantor E, Rehm CD, Haas JS, Chan AT, Giovannucci E. Trends in prescription drug use among adults in the U.S. from 1999-2012. *JAMA* 2015:314:1818-1830. Available at: http://jama.jamanetwork.com/article.aspx?articleid=2467552. Accessed Nov 9, 2015.
5. Pratt LA, Brody DL, Gu Q. Antidepressant use in persons aged 12 and over: United States, 2005–2008. National Center for Health Statistics (NCHS) Data Brief No. 76; October 2011. Available at: www.cdc.gov/nchs/data/databriefs/db76.htm. Accessed Nov 9, 2015.
6. Calderone J. The rise of all-purpose antidepressants. *Scientific American*, Oct 16, 2014. Available at: www.scientificamerican.com/article/the-rise-of-all-purpose-antidepressants/. Accessed Nov 9, 2015.
7. Insel T. National Institute of Mental Health Director's Blog, Dec 6, 2011. Available at: www.nimh.nih.gov/about/director/2011/antidepressants-a-complicated-picture.shtml. Accessed Nov 15, 2015.
8. Takayanagi Y, Spira AP, Bienvenu OJ, et al. Abstract: Antidepressant use and lifetime history of mental disorders in a community sample: results from the Baltimore Epidemiologic Catchment Area Study. *J Clin Psychiatry* 2015:76(1):40–44. Available at: www.ncbi.nlm.nih.gov/pubmed/25188822. Accessed Nov 9, 2015.
9. Kirsch I, Deacon B, Huedo-Medina T, et al. Initial severity and antidepressant benefits: a meta-analysis of data submitted to the Food and Drug Administration. *PLoS Med* 2008:5(2):e45. doi: 10.1371/journal.pmed.0050045. Available at: www.ncbi.nlm.nih.gov/pmc/articles/PMC2253608/. Accessed Nov 20, 2015.
10. Centers for Disease Control and Prevention. Prescription painkiller overdoses in the US. CDC Vitalsigns; November 2011. Available at: www.cdc.gov/vitalsigns/PainkillerOverdoses/index.html. Accessed Nov 13, 2015..
11. Alexander GC, Frattaroli S, Gielen AC, eds. *The Prescription Opioid Epidemic: An Evidence-Based Approach*. Baltimore, Md.: Johns Hopkins Bloomberg School of Public Health; 2015. Available at: www.jhsph.edu/research/centers-and-institutes/center-for-drug-safety-and-effectiveness/opioid-epidemic-town-hall-2015/. Accessed Nov 17, 2015.
12. Substance Abuse and Mental Health Services Administration. *Results from the 2012 National Survey on Drug Use and Health: Summary of National Findings*. NSDUH Series H-46, HHS Publication No. (SMA) 13-4795; 2013. Available at: http://archive.samhsa.gov/data/NSDUH/2012SummNatFindDetTables/Index.aspx. Accessed Nov 20, 2015.
13. National Institute on Drug Abuse. Dramatic Increases in Maternal Opioid Use and Neonatal Abstinence Syndrome; September 2015. Available at: https://www.drugabuse.gov/related-topics/trends-statistics/infographics/dramatic-increases-in-maternal-opioid-use-neonatal-abstinence-syndrome. Accessed Nov 10, 2015.
14. National Institute on Drug Abuse. Nationwide trends. DrugFacts; June 2015. Available at: https://www.drugabuse.gov/publications/drugfacts/nationwide-trends. Accessed Nov 9, 2015.
15. National Institute on Drug Abuse. Commonly Abused Drugs; October 2015. Available at: www.drugabuse.gov/drugs-abuse/commonly-abused-drugs-charts. Accessed Nov 9, 2015.
16. U.S. Department of Health and Human Services. Substance Abuse and Mental Health Services Administration. Center for Behavioral Health Statistics and Quality. *Behavioral Health Trends in the United States:. Results from the 2014 National Survey on Drug Use and Health*. HHS Publication No. SMA 15-4927, NSDUH Series H-50); 2015. Available at: www.samhsa.gov/data/sites/default/files/NSDUH-FRR1-2014/NSDUH-FRR1-2014.pdf. Accessed Nov 9, 2015.
17. Volkow ND. America's Addiction to Opioids: Heroin and Prescription Drug Abuse. Testimony to Congress. National Institute on Drug Abuse; May 14, 2014. Available at: www.drugabuse.gov/about-nida/legislative-activities/testimony-to-congress/2015/americas-addiction-to-opioids-heroin-prescription-drug-abuse. Accessed Nov 22, 2015.
18. Meier MH, Caspi A, Ambler A, et al. Persistent cannabis users show neuropsychological decline from childhood to midlife from childhood to midlife. *Proc Natl Acad Sci USA* 2012;109(40):E2657-2664. doi: 10.1073/pnas.1206820109. Available at: www.pnas.org/content/109/40/E2657.full. Accessed Nov 10, 2015.
19. U.S. Food and Drug Administration. Atypical Antipsychotic Drug Information. Available at: www.fda.gov/drugs/drugsafety/postmarketdrugsafetyinformationforpatientsandproviders/ucm094303.htm. Accessed Nov 12, 2015.
20. U.S. Food and Drug Administration. Postmarket Drug Safety Information for Patients and Providers. Available at: www.fda.gov/Drugs/DrugSafety/PostmarketDrugSafetyInformationforPatientsandProviders/. Accessed Nov 9, 2015.
21. U.S. Government Accountability Office. *Antipsychotic Drug Use: HHS Has Initiatives to Reduce Use among Older Adults in Nursing Homes, but Should Expand Efforts to Other Settings*. GAO-15-211; Mar 2, 2015. Available at: www.gao.gov/products/GAO-15-211. Accessed Nov 9, 2015.
22. Crystal S, Olfson M, Huang C, Pincus H, Gerhard H. Broadened use of atypical antipsychotics: safety, effectiveness, and policy challenges. *Health Aff* 2009;28(5):w770-w778. doi: 10.1377/hlthaff.28.5.w770. Available at: http://content.healthaffairs.org/content/28/5/w770.full. Accessed Nov 12, 2015.
23. Kutz GD. Foster Children: HHS Guidance Could Help States Improve Oversight of Psychotropic Prescriptions. GAO-12-270T. Government Accountability Office. Testimony before the Subcommittee on Federal Financial Management, Government Information, Federal Services, and International Security, Committee on Homeland Security and Governmental Affairs, U.S. Senate Subcommittee on Federal Financial Management, Government Information, Federal Services, and International Security, Committee on Homeland Security and Governmental Affairs; Dec 1, 2011. Available at: www.gao.gov/products/GAO-12-270T. Accessed Nov 12, 2015.
24. Centers for Disease Control and Prevention. Treatment of attention-deficit/hyperactivity disorder (ADHD) among children with special health care needs. Key Findings; April 2015. Available at: www.cdc.gov/ncbddd/adhd/features/adhd-keyfindings-treatment-special-needs-children.html. Accessed Nov 12, 2015.
25. Centers for Disease Control and Prevention. ADHD estimates rise; continued increases in ADHD diagnoses and treatment with medication among U.S. children. Digital Press Kit; May 2014. Available at: www.cdc.gov/media/dpk/2013/dpk-ADHD-estimates-rise.html. Accessed Nov 12, 2015.
26. *Frontline*. Statistics on Stimulant Use. Available at: www.pbs.org/wgbh/pages/frontline/shows/medicating/drugs/stats.html. Accessed Nov 15, 2015.
27. Smith M. Medicating kids. Transcript: program #1914. *Frontline*; Apr 10, 2001. Available at: www.pbs.org/wgbh/pages/frontline/shows/medicating/etc/script.html. Accessed Nov 15, 2015.
28. *Frontline*. Interview with William Dodson, M.D.; Oct 17, 2000. Available at: www.pbs.org/wgbh/pages/frontline/shows/medicating/interviews/dodson.html. Accessed Nov 12, 2015.
29. Lambert N, McLeod M, Schenk S. Subjective responses to initial experience with cocaine: an exploration of the incentive–sensitization theory of drug abuse. *Addiction* 2006:101:713–725. doi: 10.1111/j.1360-0443.2006.01408.x. Available at: http://onlinelibrary.wiley.com/doi/10.1111/j.1360-0443.2006.01408.x/abstract. Accessed Nov 10, 2015.
30. Grant FD Jr. "A fair, honorable, and legitimate trade." *American Heritage* 1986: 37(5). Available at: www.americanheritage.com/content/%E2%80%9C-fair-honorable-and-legitimate-trade%E2%80%9D. Accessed Feb 23, 2016.
31. Allingham P, ed. England and China: the Opium Wars, 1839-60. In: *The Victorian Web*. Thunder Bay, Ontario: Lakehead University. Available at: www.victorianweb.org/history/empire/opiumwars/opiumwars1.html. Accessed Nov 10, 2015.
32. Lin Zexu. Letter of Advice to Queen Victoria; 1839. Digitalchina/harvard. Available at http://cyber.law.harvard.edu/ChinaDragon/lin_xexu.html. Accessed Nov 15, 2015.
33. National Institute on Drug Abuse. Understanding drug abuse and addiction. DrugFacts. Available at: https://www.drugabuse.gov/publications/drugfacts/understanding-drug-abuse-addiction. Accessed Nov 3, 2015.
34. Williams G. Shortage of child psychiatrists of America. *AlJazeera America*; Jun 25, 2015. Available at: http://america.aljazeera.com/articles/2015/6/25/shortage-of-child-psychiatrists-in-us.html. Accessed Dec 30, 2015.
35. Crary D. There's a serious shortage of psychiatrists in the U.S. *Huffington Post*, Sep 8, 2015. Available at: www.huffingtonpost.com/entry/theres-a-serious-shortage-of-psychiatrists-in-the-us_55eef13ce4b093be51bc128f. Accessed Dec 30, 2015.
36. Lenin V. Quotable quote. *Goodreads*. Available at: www.goodreads.com/quotes/106700-give-me-just-one-generation-of-youth-and-i-ll-transform. Accessed Nov 9, 2015.
37. Leonard A. How LSD microdosing became the hot new business trip. *Rolling Stone*, Nov 20, 2015. Available at: www.rollingstone.com/culture/features/how-lsd-microdosing-became-the-hot-new-business-trip-20151120. Accessed Nov 27, 2015.
38. Huxley A. The ultimate revolution; Mar 20, 1962. Speech Archive 0269. Berkeley Language Center. Transcript. *Pulse*; Feb 2, 2009. Available at: http://pulsemedia.org/2009/02/02/aldous-huxley-the-ultimate-revolution/. Accessed Nov 10, 2015.