Integrating Psychological and Pharmacological Treatments for Addictive Disorders

An Evidence-Based Guide

Edited by James MacKillop, George A. Kenna, Lorenzo Leggio, and Lara A. Ray

ROUTLEDGE

Integrating Psychological and Pharmacological Treatments for Addictive Disorders

Integrating Psychological and Pharmacological Treatments for Addictive Disorders distills the complex literature on addiction, offering a curated toolbox of integrated pharmacological and psychotherapeutic treatments in chapters authored by leading experts. Introductory chapters on the epidemiology, etiology, and fundamentals of addiction treatment provide a concise overview of the state of the field. Subsequent chapters then focus on the treatment of specific substance use disorders and on gambling disorder. Finally, a chapter on the treatment of addiction in primary care addresses the opportunities for clinical care in nonspecialist outpatient settings. Physicians, psychologists, social workers, and other mental health professionals will come away from the book with an essential understanding of evidence-based practice in treating addiction and the scientific foundations of those approaches.

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This volume is dedicated to the courageous patients seeking to break the vicious cycle of addiction and the committed mental health professionals working to provide them with the tools to do so.

James MacKillop, George A. Kenna, Lorenzo Leggio, and Lara A. Ray

To Emily, Annabelle, and Cael

James MacKillop

To the tireless efforts of all the past, present, and future researchers, staff and support personnel at the Brown University Center for Alcohol and Addiction Studies

George A. Kenna

To Dave S., for his tireless and uncompromising devotion to patients with addictive disorders

Lorenzo Leggio

To my husband, Kyle, and my three beautiful daughters, Carmen, Piper, and Gabriela

Lara A. Ray

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Series Editor's Foreword

Integrating Psychological and Pharmacological Treatments for Addictive Disorders: An Evidence-Based Guide is the fifth book in one of Routledge's newest series, Clinical Topics in Psychology and Psychiatry (CTPP). The overarching goal of CTPP is to provide mental health practitioners with practical information that is both comprehensive and relatively easy to integrate into day-to-day clinical practice. It is multidisciplinary in that it covers topics relevant to the fields of psychology and psychiatry, and appeals to the student, early career, and senior clinician. Books chosen for the series are authored or edited by national and international experts in their respective areas, and contributors are also highly respected clinicians. The current volume exemplifies the intent, scope, and aims of the CTPP series.

Editors James MacKillop, George A. Kenna, Lorenzo Leggio, and Lara A. Ray bring together some of the world's top scholars and clinicians and provide a comprehensive review of evidence-based treatments for addictive disorders. Unlike many books that focus on either psychosocial or pharmacological interventions, the editors highlight the latest and most salient research that guides effective integrative clinical practice. A thorough review of the epidemiological data surrounding alcohol, tobacco, and prescription and illicit drugs sets the stage for a thoughtful discussion about the biopsychosocial explanation for the development of addictive disorders. The subsequent seven chapters break down what we currently know about effective pharmacological and psychosocial treatments for the most common addictive disorders, including opioids and gambling. The final chapter discusses the application of these interventions in the setting that most frequently sees these disorders – primary care.

The clinician will likely find all chapters equally important and beneficial – a relatively uncommon experience with edited books. Of particular importance and excellence is the chapter on opioid use disorders. As the abuse and dependence rates of prescription narcotics continue to rise and reach epidemic proportions, the fields of addiction psychology, psychiatry, and medicine struggle to effectively combat the ill effects of this cotemporary social disease. In addition to reviewing the latest evidence for popular medications such as buprenorphine, naloxone, and naltrexone, the authors give equally important attention to the latest support for using cognitive, behavioral, and family therapies.

Another important component of the current volume is its focus on delivering effective interventions in the primary care setting. Not unlike psychiatric disorders, primary care practitioners see the lion's share of addictive disorders. The authors discuss evidenced-based means for assessing and treating these disorders, understanding limitations of time and resources. They also review a means for better integration addiction treatment into primary care clinics, which treats the problem where it is often first diagnosed. This is similar to what is being done for psychiatric disorders in primary care clinics.

In an area of clinical practice that has posed some of the most significant challenges for healthcare providers over the past few decades, it is refreshing to see a volume of this quality. It is also surprising that we are just now seeing such a comprehensive, focused, and clearly written book on the topic. MacKillop, Kenna, Leggio, and Ray have done the field a great service by producing such an excellent resource. Researchers and clinicians of all stripes will find this volume worth its weight in gold.

Bret A. Moore, PsyD, ABPP
Series Editor
Clinical Topics in Psychology and Psychiatry

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Part I

Epidemiology, Etiology, and Treatment of Addictive Disorders

Chapter 1

The Epidemiology and Public Health Burden of Addictive Disorders

Kevin D. Shield, Sameer Imtiaz, Charlotte Probst, and Jürgen Rehm

Competing interests: The authors have declared that no competing interests exist

Scope of the Chapter

The use of addictive substances and engagement in addictive behaviors have taken place since the beginning of recorded history, are postulated to have contributed to human evolution [1], and occur worldwide. Furthermore, compulsive and addictive behaviors that are characterized by an impulse, drive, or temptation to perform the behaviors are also hypothesized to be the result of evolutionary pressures [2]. It is theorized that people engage in the use of addictive substances and in addictive behaviors for pleasure, to feel better, as a social lubricant, out of curiosity, and "because others are doing it" [3]. After initiating substance use or engaging in an addictive behavior, an individual's vulnerability to becoming addicted to the substance or behavior is dependent on numerous complex and interacting genetic and environmental factors [4]. The harms caused by the use of addictive substances are dependent on the substance used, as well as the amount and patterns of substance use [5, 6].

The following chapter provides an overview of the epidemiology (mainly prevalence) and burden of disease associated with the use of alcohol, tobacco, and illicit drugs, and the use disorders associated with these substances. Current medical definitions of addictive behaviors (see the Diagnostic and Statistical Manual of Mental Disorders (DSM) 5 [7]) include gambling and consider Internet/gaming addictions as potentially addictive behaviors. Specifically, in the DSM-III, pathological gambling was introduced as a disorder of impulse control [8], suggesting an intrapersonal difficulty in controlling one's actions. In the DSM-IV, similarities to the phenomena of substance use disorders were discussed [9], namely similarities in the neurological activation of the reward system [10], genetic similarities [11], and similarities of specific symptoms such as craving and tolerance [12]. These discussions led to the inclusion of gambling disorders in the category of substance-related and addictive disorders in the DSM-5 [13]. In addition, in the DSM-5 [7], Internet Gaming Disorder was identified as a condition warranting more clinical research and experience before being formally included in the DSM as a disorder.

Data are scarce on the epidemiology and burden of addictive behaviors such as gambling or gaming disorders. For example, ALICE RAP (Addiction

and Lifestyles in Contemporary Europe Reframing Addictions Project; www.alicerap.eu) aimed to provide such data for countries in the European Union (EU), but did not find data on the prevalence of gambling disorders for these generally data-rich high-income countries.

This chapter also provides an overview of the various definitions of addictive disorders. Although there are medical (psychiatric) definitions found in the DSM-5 and in the tenth revision of the International Classification of Diseases (ICD) [14], these definitions are rarely used in fields other than medicine. For example, in the case of tobacco, medical classifications of tobacco use disorders are not used in the field of epidemiology, and are not included in the burden of disease classifications. With respect to illicit drug use disorders, other systems of classification are more important, such as the category of problem drugs found in the World Drug Reports ([15] as the most recent example). For a recent general discussion of how best to define addictive disorders comprising both substance use disorders and other behavioral addictions, see the overview of ALICE RAP [16, 17].

The overview of the burden of disease caused by addictive disorders presented in this chapter is restricted to the health burdens caused by such disorders (i.e. mortality, years of life lost to premature mortality (YLL), years of life lost to disability (YLD), and/or disability adjusted life years (DALYs) lost attributable to addictive disorders; see [18]). The most important measure of the health burden caused by addictive disorders is the DALYs lost [19], which is the sum of YLL and YLD (i.e. a summary measure of health) [19]. All estimates of the health burden caused by addictive disorders were obtained from the most recent iteration of the Global Burden of Disease and Injury (GBD) study (for the last relevant publication on the topic, see [20] and http://vizhub.healthdata.org/gbd-compare/). Although other estimates of the burden of addictive disorders exist, estimates from the GBD study are presented in this chapter, as they are comparable estimates across substances; however, the GBD study estimates do have limitations. Substance use disorders as defined by the GBD 2010 included only dependence as defined by the DSM-IV [21] or ICD-10 [14], and not abuse (DSM-IV: [19]) or harmful use (ICD-10: [14]). Thus, it is implicitly assumed that the disability weight [22] for people with "abuse" or "harmful use" is the same as for similar people without those disorders. Lastly, the GBD study does not provide explicit estimates for tobacco use disorders, but is restricted to smoking as a risk factor.

Alcohol Use Disorders

Alcohol has been used by societies for thousands of years [23]. Furthermore, the industrialization of alcohol production and the globalization of alcohol marketing and promotion led to an increase in alcohol consumption worldwide in the 20th century [24]. Alcohol consumption is causally associated with both positive (at low levels of alcohol consumption for people who do not engage in heavy episodic drinking) and negative medical consequences [25], and is the fifth leading risk factor for the global burden of disease [26]. Alcohol use disorders

(AUDs) in general, and alcohol dependence (AD) specifically, are some of the most severe health effects caused by the prolonged harmful use of alcohol [7]. Furthermore, with a prevalence of approximately 4%, AUDs are some of the most common mental disorders worldwide [20]. Due to the detrimental effects of the chronic heavy use of alcohol, people with an AUD have a life expectancy that is more than 10 years lower than people without an AUD [27, 28]. Additionally, AUDs are often linked to the majority of the alcohol-attributable burden of disease and death [29, 30] since the risk relationship between the average volume of alcohol consumed and most disease and injury endpoints is exponential [25]. However, despite the prevalence of AUDs and the burden they cause, AD was only first suggested in 1976 by Edwards and Gross [31].

The following section on AUDs provides an overview of the diagnostic criteria for AUDs, the epidemiology of alcohol use and AUDs (data for this section were obtained from the Global Status Report on Alcohol and Health [24]), and the burden of disease attributable to alcohol use and AUDs (data for this section were obtained from the GBD 2010 study [20]).

Epidemiology of Alcohol Use and Alcohol Use Disorders

The consumption of alcohol is a common behavior in most high-income countries; the average prevalence of lifetime abstainers in high-income countries is below 20% [24]. However, in low- and middle-income countries, lifetime abstinence from consumption of alcohol is more common [24]. Additionally, in countries with a high proportion of Muslims (i.e. 80% and more), lifetime abstention rates are often as high as 80%, even among people with high socioeconomic status [24].

Similar to the prevalence of alcohol consumption, the prevalence of AUDs varies considerably between countries due to religious, economic, and other differences [24]. In 2010, an estimated 95 million people worldwide met the criteria for AD [20]. The lowest prevalence of AUDs (past 12 months) at 0.3% among adults was observed in Eastern Mediterranean countries (e.g. Afghanistan, Egypt, Lebanon, Pakistan, and Somalia), whereas the Americas (including South and Central America) and Europe showed the highest prevalence at 6.0% and 7.5%, respectively [24]. Figure 1.1 outlines the prevalence of AUDs by World Health Organization (WHO) region.

In all WHO regions, the prevalence of AUDs among men was more than double that of the prevalence of AUDs among women. Among men, the highest past year prevalence of AUDs was in the European region (12.6%), followed by the Americas (9.0%). For women, the highest prevalence of AUDs was in the Americas (3.2%), followed by the European region (2.9%). For both men and women, the lowest prevalence of AUDs was observed in the Eastern Mediterranean region (0.2%).

For AD in particular, the global past year prevalence was 2.3% in 2010. As with the prevalence of AUDs, the highest prevalence rates of AD were observed

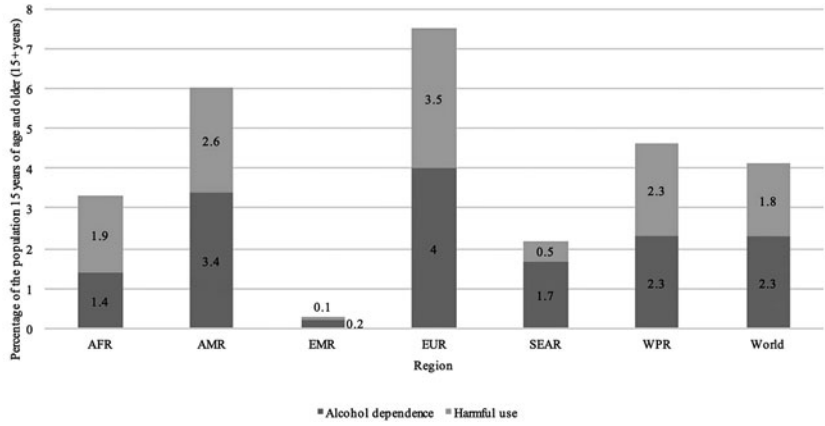

Figure 1.1 Prevalence of alcohol use disorders (AUDs) by WHO region and the world, 2010 [24][1]

in the European region (4%) and the Americas (3.4%). Furthermore, AD has become an increasingly important public health issue, with an observed increase in the prevalence of AD globally from 1990 to 2010 [20].

The Health Burden Caused by the Consumption of Alcohol

Over 230 three-digit ICD-10 code diseases (communicable as well as non-communicable) and injuries are causally linked to alcohol consumption [32, 33] (see Table 1.1 for an overview). Furthermore, for more than 30 of these conditions, alcohol consumption is a necessary cause (and the burdens caused by these diseases and injuries are wholly attributable to alcohol consumption), such as alcoholic cirrhosis of the liver, poisoning by alcohol, alcoholic polyneuropathy, and AUDs.

The incidence and mortality of all outcomes causally associated with alcohol use are generally determined by the volume of pure alcohol consumed and the pattern in which alcohol is consumed (in some rare cases, the harms caused by alcohol are also dependent on the quality of the alcoholic beverage) [25]. Furthermore, although persons of low socioeconomic status are more likely to be lifetime abstainers [34], these individuals have been shown to have a twofold to 12-fold elevated risk of dying from an alcohol-attributable cause of death [35].

As high levels of alcohol use or heavy episodic drinking characterize AUDs, people with an AUD are more likely to experience diseases and injuries causally related to alcohol consumption when compared to people without an AUD. A recent study from Denmark, Finland and Sweden observed that people with an AUD have a 24- to 28-year shorter life expectancy than the general population

Table 1.1 Conditions causally associated with alcohol use and corresponding ICD-10 codes

Cause of mortality or morbidity	*ICD-10 code*
Infectious diseases	
Tuberculosis	A15–A19
HIV/AIDS	B20–B24
Cancer	
Lip, oral cavity and pharyngeal cancers	C00–C14
Oesophageal cancer	C15
Liver cancer	C22
Laryngeal cancer	C32
Breast cancer	C50
Colon cancer	C18
Rectal cancer	C20
Endocrine, nutritional, and metabolic diseases	
Diabetes mellitus	E10–E14
Alcohol-induced pseudo-Cushing's syndrome	E24.4*
Neuropsychiatric diseases	
Alcohol use disorders	F10
Degeneration of nervous system attributed to alcohol	G31.2*
Epilepsy	G40–G41
Alcoholic polyneuropathy	G62.1*
Alcoholic myopathy	G72.1*
Cardiovascular diseases	
Hypertensive disease	I10–I15
Ischemic heart disease	I20–I25
Alcoholic cardiomyopathy	I42.6
Cardiac arrhythmias	I47–I49
Ischemic stroke, haemorrhagic, and other non-ischemic stroke	I60–I66
Digestive diseases	
Alcoholic gastritis	K29.2
Cirrhosis of the liver	K70*, K74
Acute and chronic pancreatitis	K85, K85.2*, K86.0*, K86.1
Respiratory infections	
Lower respiratory infections	J10–J18, J20–J22

continued . . .

Table 1.1 Continued

Cause of mortality or morbidity	*ICD-10 code*
Conditions arising during pregnancy or the prenatal period	
Maternal care for (suspected) damage to fetus from alcohol	O35.4*
Fetus and newborn affected by maternal use of alcohol	P04.3*
Low birth weight	P05–P07
Fetal alcohol syndrome (dysmorphic)	Q86.0
External causes	
Toxic effect of alcohol	T51
Unintentional injuries (transport injuries, poisonings, falls, fires, drowning, other)	V01–X59, Y15*, Y40–Y86, Y88, Y89, Y90*, X45*
Intentional injuries (self-inflicted injuries, homicide)	X60–Y09, Y87

Note: Conditions that are 100% attributable to alcohol use are indicated with an asterisk (*) [32]

[27], which coincides with the high standardized mortality rates among people with AUDs [36–38].

Burden of Disease Attributable to Alcohol Consumption

In 2010, alcohol consumption caused 2.7 million deaths globally (1.8 million deaths among men and 0.9 million deaths among women), accounting for 5.2% of all deaths in 2010 (6.3% of all deaths among men and 3.8% of all deaths among women) [20, 26]. The burden of disease attributable to alcohol consumption totaled 98 million DALYs lost in 2010 (75 million DALYs lost among men and 23 million DALYs lost among women), accounting for 3.9% of all DALYs lost (5.5% of all DALYs lost among men and 2.0% of all DALYs lost among women). Furthermore, alcohol consumption is the fifth most important risk factor for the burden of disease globally, and was the top risk factor for the burden of disease among people 15 to 49 years of age [39]. This observation can be partially explained by the fact that the diseases that are causally related to alcohol consumption harm people who are younger in age as well as those who are older in age [39].

There is also considerable regional variance, with alcohol use accounting for approximately 13% of the total burden of disease in Eastern Europe, but for less than 1% in the Central Sub-Saharan, North Africa and Middle East regions. Figure 1.2 outlines the percentage of the total burden of disease attributable to alcohol consumption in 2010.

Although the burden of disease attributable to alcohol consumption is large, this burden has decreased since 1990, with the burden of disease due to alcohol consumption decreasing from 1,637 DALYs lost per 100,000 people in 1990 to 1,444 DALYs lost per 100,000 people in 2010.

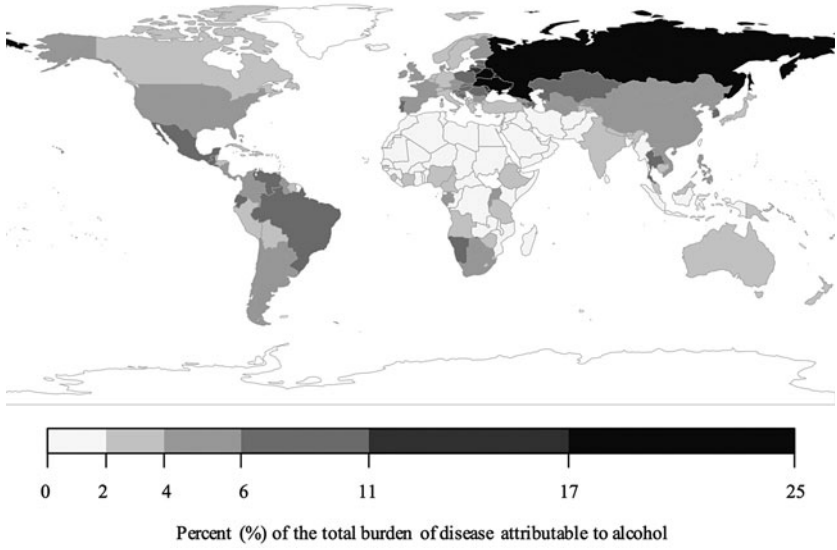

Figure 1.2 Percentage of the total burden of disease (measured in disability adjusted life years lost) attributable to alcohol consumption in 2010 [84]

Burden of Disease Attributable to Alcohol Use Disorders

In 2010, AUDs accounted for 111,000 deaths and 18 million DALYs lost. For women, AUDs accounted for about 100 in 100,000 DALYs lost in 2010, while the rate for men in 2010 was much higher, with 400 in 100,000 DALYs lost. The burden of disease attributable to AUDs has decreased since 1990 from 275 deaths per 100,000 people to 259 deaths per 100,000 people in 2010.

Among mental and substance use disorders, AUDs are responsible for 44% of the YLL within this category [20]. The magnitude of the burden of disease caused by AUDs is dependent on age. AUD-attributable YLDs are highest for the age group of 20 to 50 years; death rates increase steadily from the age of 20 and peak around the age of 55, with relatively high rates for older age groups. In absolute terms, the majority of AUD-attributable deaths occur between the ages of 40 and 60 years. Figure 1.3 outlines the number of deaths per 100,000 people attributable to alcohol consumption in 2010.

With respect to regional differences, DALYs lost due to AUDs were highest in the Eastern Europe region, accounting for approximately 1,000 of every 100,000 observed DALYs lost, and were lowest for the Western Sub-Saharan Africa, North Africa and the Middle East regions, accounting for less than 70 in every 100,000 observed DALYs lost. In the North America, Western and Central Europe regions, DALYs lost ranged from between 350 and 400 per 100,000 observed DALYS lost. Globally, the absolute burden of disease attributable to AUDs has increased over the past 20 years. Due to a decreasing