

ADDICTION

A MULTIDIMENSIONAL PUBLIC HEALTH CHALLENGE

SCIENTIFIC • SOCIAL • LEGAL • PSYCHOLOGICAL • ECONOMIC
ENVIRONMENTAL • CULTURAL • FAMILY



With sincere appreciation to
UMUDDER PRESIDENT HALİT ERYİĞİT
for his support in the fight against addiction.

Halit Eryigit

BE INFORMED, UNDERSTAND, PREVENT, SUPPORT,
GIVE HOPE!

KNOWLEDGE, SOLIDARITY AND HOPE IN THE FIGHT AGAINST ADDICTION



This book is written to show that hope never fades in the fight against addiction. To all individuals who remind us that healing is possible even in life's darkest moments, to families battling addiction, to healthcare workers, teachers, and young people... Dedicated to all who believe in the power of humanity, the light of science, and the strength of solidarity within society.

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Preface

Addiction is one of the most significant public health issues faced by modern societies today, producing multidimensional consequences on individual, social, and global levels. The fast pace of modern life, the dizzying speed of technological advancement, the rise of individual loneliness, and the weakening of social bonds are driving people toward various forms of addiction. Manifesting in different ways such as substance, alcohol, tobacco, technology, shopping, digital gaming, or social media addiction this phenomenon affects not only an individual's physiological and psychological well-being but also family relationships, social dynamics, productivity, and economic stability.

Addiction is a process that restricts human free will, diminishes quality of life, and prevents individuals from realizing their potential. Each form of addiction transcends being a mere personal choice and becomes a social issue that impacts not only the individual but also their family, environment, and the society in which they live. Therefore, combating addiction is not merely a matter of healthcare or rehabilitation; it is also closely linked to social justice, public awareness, education, and ethical responsibility.

The fight against all forms of addiction requires not only individual effort but also strong social solidarity. Raising family awareness, ensuring that educational institutions play preventive roles, providing accessible and supportive health services, promoting accurate guidance through the media, and fostering collaboration among local administrations and non-governmental organizations are all essential elements of this process. In this context, an interdisciplinary approach to combating addiction is of great importance. The cooperation of fields such as education, health, law, sociology, psychology, communication, and social work enables the development of effective and sustainable solutions.

Enhancing individual awareness, promoting healthy lifestyles, and particularly educating the younger population about risk factors constitute the cornerstones of a long-term strategy. Strengthening the life skills and self-awareness of young people, and helping them become resilient individuals in the face of the risks brought by the digital age, are vital for building a healthy foundation for our future.

With this understanding, UMUDDER, founded in 2005, operates with the goal of filling a crucial gap in the field of addiction prevention and intervention. Our association not only contributes to the rehabilitation and reintegration of individuals struggling with addiction but also aims to establish prevention, awareness, and support mechanisms across all segments of society. Through its projects, training programs, seminars, and field activities, UMUDDER seeks to foster both individual awareness and social solidarity.

The core vision of our association is to contribute to the building of a conscious, resilient, productive, and ethically grounded society that stands against all forms of addiction.

This book aims to provide a holistic perspective on addiction, to strengthen both social and individual responsibility in combating it, and to present scientific data and contemporary approaches to the issue. Furthermore, it emphasizes that the struggle against addiction is not merely a treatment process, but also a process of awareness, solidarity, transformation, and reconstruction.

Our ultimate goal is to contribute to the creation of a healthy, productive, and conscious society free from addiction. We believe that every small act of individual responsibility represents a great investment in the future of our society. With this belief, we hope that this work will not only provide knowledge to its readers but also inspire them to think, question, produce solutions, and act with hope.

Halit ERYIGIT
International Association for the Fight
Against Substance Addiction
(UMUDDER)

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Abstract

New-generation drugs pose a significant threat to both individual health and public safety. Their greatest danger lies in being deceptively presented as “legal” or “harmless,” often concealed in colorful blotters, herbal mixtures, or electronic cigarettes. With unknown chemical compositions, these substances can lead to severe outcomes such as poisoning, cardiac arrest, and sudden death.

Combating addiction requires more than punitive measures; educational, awareness-based, and treatment-oriented approaches must work in harmony. It is essential to provide young people with accurate information from an early age and to raise awareness among families, teachers, and healthcare professionals. Coordination among public institutions is crucial to ensure the rapid identification of new psychoactive substances and their inclusion in legal regulations.

Addiction is not a weakness of will but a complex disease that arises at the intersection of biological, psychological, and social factors. Genetic predispositions, environmental stressors, and epigenetic mechanisms jointly contribute to the development of addiction. Therefore, both genetic and environmental dimensions should be considered together in treatment.

The consequences of addiction are multifaceted:

- Health: Increased risks of organ damage, infections, cardiovascular diseases, and cancer.
- Social: Family conflicts, social isolation, job loss, and higher crime rates.
- Economic: Rising treatment costs and reduced productivity at the societal level.

Fighting addiction is not an individual but a collective responsibility. Knowledge, awareness, and early intervention are the strongest tools in this struggle. In Türkiye, the legal system treats addiction not merely as a criminal issue but as a social problem requiring rehabilitation and reintegration.

The family is the first and most vital line of defense in the fight against addiction. Well-informed, consistent, and supportive parents can protect children from risky behaviors. Family communication, early recognition of warning signs, and professional help significantly improve treatment outcomes.

Approaches toward individuals with addiction should be empathetic and treatment-oriented, not judgmental. Families should cooperate with institutions such as AMATEM and Yeşilay, supporting both the individual and their own emotional resilience.

In conclusion, the fight against addiction can only succeed through a science-based, human-centered, and socially cohesive approach. Strong families, informed individuals, and coordinated institutions form society's most resilient defense against addiction.

Chapter 1

Author: Arife KACIRAN PhD.

NEW GENERATION DRUGS

In recent years, a striking change has been observed worldwide in the use of illicit substances. Traditional drugs (such as cannabis, heroin, and cocaine) are increasingly being replaced by chemicals synthesized in laboratories known as “new-generation drugs,” or in scientific terms, “new psychoactive substances (NPS).” These substances are typically produced by making small modifications to the chemical structures of banned drugs in order to fall outside existing legal frameworks. In this way, a “new” compound is created while evading legal controls for a time. However, most of these substances are not legal; because they are produced under illicit conditions, their contents and purity are unknown.

One of the most dangerous aspects of new-generation drugs is that their effects are unpredictable and extremely potent. These substances include synthetic cannabinoids (“Spice,” “K2/Spice”), synthetic cathinones (“bath salts”), new-generation opioids (e.g., nitazene derivatives), novel benzodiazepines, and various hallucinogenic compounds. Many are several times stronger than the original drugs; therefore, even very small amounts can cause severe poisoning, cardiovascular problems, loss of consciousness, and even death.

Uncertainty about their legal status creates a false sense of security in society. Some users try these substances believing they are “legal,” “herbal,” or “harmless.” This perception is a serious misconception. All new-generation drugs pose a high risk to human health and are in no way safe. Moreover, because production conditions are unregulated, two products sold under the same name can contain completely different chemicals. This exposes users to deadly substances without their knowledge.

Usually sold as powders, tablets, liquids, or herbal mixtures, these substances can be easily obtained online or through illegal channels. Among young people in particular, misleading information circulating on social media and online platforms fuels the rapid spread of these

supposedly “legal” products. In reality, most of these items are illicit, unregulated, and highly dangerous to health.

From a public health perspective, new-generation drugs threaten not only individuals with addiction but society at large, through increasing cases of poisoning, difficulties in diagnosis and treatment in emergency departments, gaps in legislation, and lack of awareness. For this reason, it is vital for both individuals and institutions to become informed, access accurate information, and take necessary precautions.

1. Types, Examples, and Effects of New-Generation Drugs

New-generation drugs may appear “small, harmless, or just for fun” at first glance. However, because their chemical makeup changes constantly, no dose is safe. Most users are exposed to deadly mixtures without knowing what they are smoking or snorting. The marketing of these substances on social media as “legal” or “herbal” is a trap that especially targets young people. Therefore, it is crucial for both individuals and society to recognize that new-generation drugs are not an innocent form of entertainment but a silent risk of death.

1. 1. Synthetic Cannabinoids (K2/Spice, Jamaika, A4)

Synthetic cannabinoids are chemicals produced in laboratories to mimic THC, the active ingredient in cannabis. Yet they are far more potent, unpredictable, and potentially lethal than natural cannabis. In Turkey and worldwide, they are sold under names such as “K2/Spice,” “Jamaika,” “A4,” “Spice,” and “K2.” They are typically prepared by spraying chemicals onto herbal mixtures and smoked like cigarettes. In reality, their contents change each time; even a substance sold under the same name can contain different chemicals from one batch to another.^[1] This leads to outcomes such as overdose, heart attack, hallucinations, brain damage, and sudden death. All of these substances are illegal in Turkey and European Union countries. Although marketed as “herbal” or “harmless,” this is purely a deceptive sales tactic. Substances like A4 are particularly dangerous among young people because they are sold impregnated onto small pieces of paper, making them hard to detect and increasing the risk.

1.2. Synthetic Cathinones (Flakka, Bath Salts)

Synthetic cathinones are chemically similar to amphetamine derivatives. The best-known include “Flakka,” “mephedrone,” and those referred to as “bath salts.” These substances usually come in powder or crystal form and may be snorted, swallowed, or injected. They can quickly cause extreme energy, hallucinations, paranoia, and aggression. As the effects wear off, severe depression, anxiety, and addiction often develop. Psychotic behaviors following “Flakka” use (such as harming oneself or others) have frequently appeared in the media. Legally, the manufacture, possession, and sale of these substances are completely prohibited. The label “legal high” is merely a phrase used to mislead users.

1.3. Synthetic Opioids (Fentanyl and Derivatives)

Synthetic opioids are painkillers many times stronger than morphine, and when produced outside medical use they are extremely dangerous. The best-known example, fentanyl, is approximately 50 to 100 times stronger than morphine. These substances are often distributed illegally as counterfeit pills or powder blends. Users typically take them to reduce pain or for their euphoric effects; however, just a few milligrams more can cause fatal respiratory arrest. Consequently, many deaths worldwide and in Turkey have been linked to these substances. Synthetic opioids have one of the highest addiction potentials, and all of their derivatives are strictly prohibited under narcotics laws.

1.4. New-Generation Hallucinogens and Psychoactive Substances (NPS, 2C-B, NBOMe)

This group typically includes substances marketed as “mind-opening,” “party pills,” or “energy boosters,” synthesized to mimic LSD or MDMA. Among the best known are 2C-B, NBOMe, and the DOx family of compounds. They are generally sold as small, colorful tablets or oral dissolvable blotters. Users may experience vivid hallucinations, loss of temporal perception, and impaired motor control. These effects, however, often culminate in panic attacks, psychosis, and permanent brain damage. Because effects vary greatly by person and dose, even a single use can be fatal. Legally, all of these substances fall under Turkey’s list of controlled narcotic substances; their production, sale, and possession are crimes. Marketing them as “new” or “legal” is entirely misleading; they are dangerous compounds tweaked chemically to evade regulation.

2. Scientific Basis and Legal Status

New-generation drugs are dangerous not only because of their effects but also because of how they look and are presented. Synthetic cannabinoids sold under names like “K2/Spice,” “A4,” and “Spice” appear to be ordinary herbal mixtures; young and inexperienced users often mistake them for “harmless” or “natural.” In fact, the chemicals they contain are extremely potent, and each package may contain different compounds. Thus, two products sold under the same name can produce completely different effects. Short-term use can cause heart palpitations, confusion, panic attacks, and hallucinations, while long-term or high-dose use can lead to permanent brain damage, psychosis, and sudden death.

Similarly, synthetic cathinones known popularly as “Flakka” or “bath salts” may initially produce feelings of energy and euphoria, but once the effects wear off, they often leave severe depression, paranoia, and behavioral disorders. In some cases, users have been reported to harm themselves or others.

Synthetic opioids further elevate the level of danger. Substances like fentanyl are many times stronger than morphine and even tiny amounts can be lethal. These drugs are often mixed into other substances; users may unknowingly be exposed to a fatal dose.

New benzodiazepines and hallucinogens carry similar risks. Sold as counterfeit tablets or colorful blotters, they can cause drowsiness, perceptual distortions, and loss of control. Even a small difference in dose can lead to serious health problems or death.

The common thread among all these substances is that their chemical composition constantly changes and their effects are unpredictable. As a result, users often do not know what they are taking, and even the simplest use carries serious health risks. In Turkey and around the world, all of these substances are banned; their production, sale, and possession are criminal offenses. However, they are often marketed with misleading labels such as “legal” or “herbal,” deceiving users and posing a serious risk especially to young people. The most powerful tools in combating these substances are knowledge and awareness; all segments of society, including families and educational institutions, must be informed.

3. Public Health Impacts and Methods of Response

New-generation drugs affect not only users but society as a whole. These substances are easily accessible to young and inexperienced users and are often sold in seemingly harmless forms. As a result, hospitals see an increase in poisoning cases, and emergency departments and healthcare workers face heavy burdens. The diversity of poisonings and the unpredictability of effects make intervention difficult and, in some cases, lead to irreversible health problems or death. In addition, people who develop addiction exert significant social and economic pressures on their families and communities; loss of productivity, disruptions in education, and family problems are common.

Various measures and strategies are employed to protect public health and reduce risks. First, legislation and law enforcement play an active role. New psychoactive substances are banned as soon as they are identified, and their production, sale, or possession is criminalized. In Turkey and many other countries, early warning systems track the introduction of new substances to the market; healthcare institutions, laboratories, and police share information to enable rapid action.

Education and awareness are also critical. Schools, universities, and social media provide young people with clear and accurate information about the dangers of these substances. Families and teachers are informed so they can recognize changes in young people's behavior and seek professional support when necessary. Health-focused interventions and rehabilitation programs also play an important role in the treatment and reintegration of individuals with substance use disorders.

A harm reduction approach is also implemented. This does not encourage use; rather, it aims to protect lives. For example, information about rapid response in cases of poisoning, calling emergency services, and opioid antidotes is disseminated. In this way, deaths and long-term health damage can be reduced in emergencies.

In summary, combating new-generation drugs cannot be limited to individual treatment or criminal penalties alone. Legislation, the healthcare system, education, and public awareness must work in concert. By informing all segments of society especially young people and their families the risks posed by these substances can be reduced and potential harms prevented.

4. Examples of Responses in Turkey and Worldwide

The rapid spread of new-generation drugs has become a global public health issue, not merely an individual health problem. Accordingly, many countries are taking comprehensive measures at both legal and social levels. Turkey is among the countries taking active steps in this regard.

In Turkey, the General Directorate of Security's Anti-Narcotics Department (EGM-NARKO) and the Ministry of Health work in coordination. Since 2017, digital systems such as the "Narcologist Project" and "UYUMA (Fight Against Drugs Mobile Application)" have enabled citizens to report suspicious situations easily. Thanks to these applications, early intervention in the field is possible, and the circulation of new synthetic substances can be detected quickly. In addition, through "Anti-Drug Guide" training programs, police officers, teachers, and healthcare personnel have become more informed in the fight against drugs.

In the field of education, the Ministry of National Education and Turkish Green Crescent Society are implementing the "Addiction Prevention Education Program." This program provides seminars to students, parents, and teachers on topics such as substance addiction and internet/technology addiction. The goal is to equip young people with awareness before they begin using substances so they can make informed choices.

Around the world, many countries have developed different strategies. The United Kingdom and Germany have established laboratory-based "early warning systems" to identify new psychoactive substances. These systems detect new drugs entering the market and rapidly place them under control. Australia and Canada have set up "harm reduction centers," allowing users to have substances tested in a safe environment under the supervision of healthcare professionals and to receive information. This approach reduces mortality and facilitates referral to treatment.

All these examples show that combating drugs must be carried out simultaneously across many domains - not just through police operations but also via education, healthcare, technology, and public awareness. The most dangerous aspect of new-generation drugs is that they are presented as "legal" or "harmless." Therefore, public awareness is the most effective line of defense, especially for protecting young people.

CONCLUSION

New-generation drugs are a rapidly spreading threat that endangers both individual health and public safety. Their greatest risk lies in their presentation as seemingly innocent or legal. They are marketed hidden in colorful blotters, herbal mixtures, or electronic cigarettes. In reality, they are often randomly synthesized in laboratories with unknown chemical contents. This severely endangers both users and the healthcare system. Cases of poisoning, loss of consciousness, cardiac arrest, and sudden death are on the rise.

Protecting public health requires a multifaceted response. Not only criminal measures but also education, awareness, and treatment-oriented approaches must be implemented together. From an early age, young people should be informed clearly and accurately about the consequences of substance use, and misinformation must be prevented. It is crucial to raise awareness among families, teachers, and healthcare workers.

Government institutions must act in coordination. Security, health, education, and social services should share information regularly; new psychoactive substances must be rapidly identified and incorporated into legal regulations. Public service announcements, social media campaigns, and volunteer initiatives that can reach all segments of society should be supported.

The treatment of individuals with addiction should be regarded as a health service rather than a punishment. The number of rehabilitation centers should be increased, and psychological and social supports should be strengthened. This will both facilitate the reintegration of individuals into society and prevent the emergence of new users.

In conclusion, the fight against new-generation drugs is not only a battle against an illegal substance but also against misinformation, social pressures, and false perceptions. Therefore, standing together as a society, spreading accurate information, and educating young people will be our strongest line of defense. It must be remembered that this struggle is a shared responsibility not only of the state but of every individual.

Chapter 2

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WHICH GENETIC AND EPIGENETIC FACTORS INFLUENCE ADDICTION?

Addiction does not arise solely from environmental or psychological causes; genetic and epigenetic factors also play important roles in this process. A person's genetic makeup affects the likelihood of trying a substance, how frequently they will use it, and their risk of becoming addicted. Substances such as alcohol, nicotine, cocaine, opioids, amphetamine, and methamphetamine affect the brain's reward system by increasing dopamine release and intensifying feelings of pleasure. Over time, these substances alter brain chemistry, producing tolerance and withdrawal. Caffeine and energy drinks likewise have stimulant effects and, when consumed frequently, may produce addiction-like effects. This section examines in detail the genetic and epigenetic factors involved in the development of addiction and explains how these mechanisms contribute to the addictive process.

1. Genetic Factors

Genetic factors are heritable traits that determine an individual's vulnerability to addiction. The most important driver in substance addiction is stimulation of the brain's reward circuitry. Several genes and pathways influence this system for example those related to dopamine, serotonin, glutamate, and gamma-aminobutyric acid (GABA). Variations (polymorphisms) in different genes can affect the functioning of reward, dopamine, serotonin, and stress systems in the brain, thereby increasing or decreasing susceptibility to substance use. Research suggests that genetic factors account for approximately 40–60% of addiction risk.

1.1. Genetic Basis of Alcohol Addiction

Alcohol addiction develops through a complex interaction of genetic, biological, and environmental factors. Genetic predisposition plays a decisive role in age at initiation, consumption level, and the risk of developing dependence. Twin and family studies indicate that genetic factors account for roughly 50–60% of alcohol addiction risk.

Enzymes involved in alcohol metabolism determine the rate at which alcohol is broken down in the body and thus directly influence tolerance, liking, and addiction risk. In particular, variations in alcohol dehydrogenase (*ADH*) and aldehyde dehydrogenase (*ALDH*) genes affect alcohol metabolism and acetaldehyde accumulation, shaping drinking behavior. Reduced enzyme activity in the *ALDH2* gene leads to acetaldehyde buildup and adverse reactions such as facial flushing, palpitations, and nausea; this can reduce addiction risk. Dopamine receptor genes (*DRD2*, *DRD4*), the serotonin transporter gene (*SLC6A4*), and GABA receptor genes (*GABRA2*) influence reward, impulse control, and stress responses, thereby increasing the risk of alcohol dependence.

1.2. Genetic Basis of Nicotine Addiction

Nicotine addiction does not result from a single gene. Many genes with small to moderate effects interact with environmental factors to shape risk. Family and twin studies estimate the genetic contribution to nicotine addiction at about 40–70%, indicating a substantial heritable component. Some individuals are genetically more sensitive to nicotine or more prone to strong activation of the brain's reward system by nicotine.

Key genes are linked to dopamine, serotonin, and acetylcholine pathways. For example, the *CHRNA5-A3-B4* gene cluster encodes subunits of nicotinic acetylcholine receptors to which nicotine binds. Variants in this cluster can increase nicotine sensitivity and addiction risk. Dopamine-related genes dopamine D2 receptor (*DRD2*) and dopamine transporter (*DAT1/SLC6A3*) affect nicotine's reward and motivational effects; variants can promote continued intake and dependence. In addition, the *CYP2A6* enzyme metabolizes nicotine in the liver; individuals who metabolize nicotine faster or slower experience nicotine differently, influencing smoking frequency and addiction risk.

1.3. Genetic Basis of Cocaine Addiction

Cocaine addiction emerges from interactions between genetic and environmental factors. Dopamine system genes (*DRD2*, *DRD4*, *SLC6A3/DAT1*) can alter reward responses and dopamine reuptake, increasing risk. Serotonin system genes (*SLC6A4*, *HTR1B*) modulate impulse control and stress reactivity, while neurotrophic genes such as BDNF affect synaptic plasticity and learning, reinforcing addiction. Opioid receptor genes (*OPRM1*) and glutamate (*GRIN2B*) and GABA (*GABRA2*) receptor genes also influence synaptic adaptation, contributing to long-term

dependence. These genetic variations do not determine addiction on their own; when combined with environmental and epigenetic factors, they raise the likelihood of developing cocaine addiction.

1.4. Genetic Basis of Opioid Addiction

Opioid addiction arising from prolonged or uncontrolled use of agents such as morphine, heroin, fentanyl, methadone, and tramadol - is a complex disorder characterized by strong physical and psychological dependence. These substances bind to opioid receptors in the brain, reducing pain while producing intense pleasure and relaxation. With repeated use, the brain adapts, requiring higher doses to achieve the same effect (tolerance). Cessation triggers withdrawal symptoms such as pain, restlessness, sweating, insomnia, and nausea. This cycle hinders cessation and entrenches dependence.

Opioids particularly activate μ -opioid receptors (*OPRM1*), increasing dopamine release and generating euphoria. Chronic use produces neuroadaptations in dopamine and opioid receptors that underlie tolerance and withdrawal. Genetic factors also play a significant role: variants in genes such as *OPRM1*, *DRD2*, *DRD4*, *DAT1*, *BDNF*, *GABRA2*, and *CYP2D6* affect reward responses, synaptic plasticity, and drug metabolism, thereby increasing or decreasing risk. Environmental factors, stress, and epigenetic mechanisms interact with genetic predisposition to shape initiation, maintenance, and relapse. Long-term opioid use can induce lasting epigenetic changes in the brain's reward system, reinforcing persistence of addiction.

1.5. Genetic Basis of Amphetamine and Methamphetamine Addiction

Amphetamine and methamphetamine addiction involve powerful stimulants that alter dopamine, serotonin, and glutamate systems associated with pleasure, motivation, and learning. The dopamine transporter gene (*SLC6A3/DAT1*) and dopamine receptor genes (*DRD2*, *DRD4*) regulate dopamine release and reuptake, potentially enhancing the drugs' rewarding effects. *COMT* participates in dopamine degradation; polymorphisms in this gene modulate dopamine levels and individual responses to stimulants. The serotonin transporter gene (*SLC6A4*) and serotonin receptor genes such as *HTR1B* influence impulsivity and stress responses, shaping vulnerability. These genetic differences interact with environmental influences (stress, trauma, early exposure) and epigenetic changes to increase the risk of amphetamine and methamphetamine dependence.

1.6. Genetic Basis of Caffeine and Energy-Drink Addiction

Dependence on stimulants such as caffeine and energy drinks are a behavioral addiction shaped by genetic and environmental interactions. Caffeine exerts stimulant effects by blocking adenosine receptors in the brain (especially *ADORA2A* and *ADORA1*). *ADORA2A* influences caffeine sensitivity and anxiety responses, while *CYP1A2*, an enzyme involved in hepatic drug metabolism determines the rate of caffeine metabolism; some people are more tolerant, others more sensitive. Consequently, variations particularly in *ADORA2A* and *CYP1A2*, as well as in dopamine and serotonin pathways can determine individual sensitivity, tolerance development, and propensity toward dependence on caffeine and energy drinks. Dopamine system genes (*DRD2*, *DRD4*, *SLC6A3*) can also influence reward and motivation, increasing the urge to consume caffeine. When combined with environmental factors, these genetic differences can heighten the tendency toward problematic use.

2. Epigenetic Factors

Epigenetic mechanisms regulate gene expression without altering DNA sequence and play important roles alongside genetic factors in the development of addiction. Prolonged substance use can alter the functioning of genes controlling neurotransmitters such as dopamine, serotonin, GABA, and glutamate through mechanisms including DNA methylation, histone modifications, and microRNAs. These changes affect the brain's reward and motivation systems, facilitating the emergence of addictive behaviors.

In addition, substance use alters DNA methylation patterns in brain regions governing reward, stress, and learning. For example, increased methylation (hypermethylation) in the *DRD2* gene linked to the dopamine system may reduce production of dopamine receptors, lowering the capacity to experience pleasure and increasing craving. Similarly, methylation changes in genes such as *BDNF* and *NR3C1* can disrupt neuronal adaptability and stress responses, contributing to maintenance of dependence. Thus, DNA methylation is considered a key mechanism through which environmental factors (substance use, stress, trauma) can durably alter gene function.

2.1. Epigenetic Basis of Alcohol Addiction

In alcohol addiction, epigenetic factors influence how genes work without changing their sequence thereby playing major roles in the development and persistence of dependence. Long-term alcohol use induces epigenetic changes in the brain, such as DNA methylation and histone modifications. These changes affect the expression of genes related to dopamine, GABA, and glutamate systems, altering reward mechanisms, stress responses, and mood. For instance, increased methylation of the *BDNF* gene after alcohol exposure may impair neuronal renewal and learning. Altered histone acetylation also contributes to lasting structural and functional brain changes. Such epigenetic effects can make quitting more difficult and raise the risk of relapse.

2.2. Epigenetic Basis of Nicotine Addiction

In nicotine addiction, epigenetic factors modify gene activity without altering DNA structure. Chronic nicotine use leads to epigenetic changes such as DNA methylation and histone modifications. By changing expression of dopamine and stress related genes, these mechanisms sustain dependence. For example, increased methylation in genes associated with dopamine receptors can potentiate nicotine's reward effect in the brain, helping to maintain craving even after cessation.

2.3. Epigenetic Basis of Cocaine Addiction

Epigenetic factors in cocaine addiction reshape gene activity to produce lasting effects on the brain's reward circuitry. Cocaine use alters DNA methylation, histone modifications, and microRNA levels. These changes increase activity of genes related to reward and motivation, producing strong hedonic responses to the drug. For example, changes in the *BDNF* gene elevate dopamine-neuron activity, while the FosB protein sustains long-term activation of addiction-related genes via histone modifications. MicroRNAs also contribute: miR-212 can limit cocaine intake, whereas miR-124 affects neuronal connectivity, supporting consolidation of dependence. Thus, epigenetic changes reinforce cocaine's effects in the brain, sustaining addiction and raising relapse risk.

2.4. Epigenetic Basis of Opioid Addiction

In opioid addiction, epigenetic factors alter gene activity and contribute to the development of dependence. Long-term opioid use produces changes in DNA methylation, histone modifications, and microRNAs. These changes modify gene activity in the brain's reward and stress systems, increasing drug sensitivity. MicroRNAs affect neuronal connectivity and communication, supporting the consolidation of dependence.

2.5. Epigenetic Basis of Amphetamine and Methamphetamine Addiction

Amphetamine and methamphetamine addiction are a process that creates persistent changes in reward and motivation circuits, with epigenetic mechanisms playing key roles. Chronic use alters expression of genes in dopamine, serotonin, and glutamate systems through DNA methylation, histone modifications, and microRNA changes. These epigenetic effects influence synaptic plasticity and learning processes, reinforcing addictive behaviors. Thus, epigenetic factors together with genetic predisposition and environmental influences are decisive in both the initiation and maintenance of dependence.

2.6. Epigenetic Basis of Caffeine and Energy-Drink Addiction

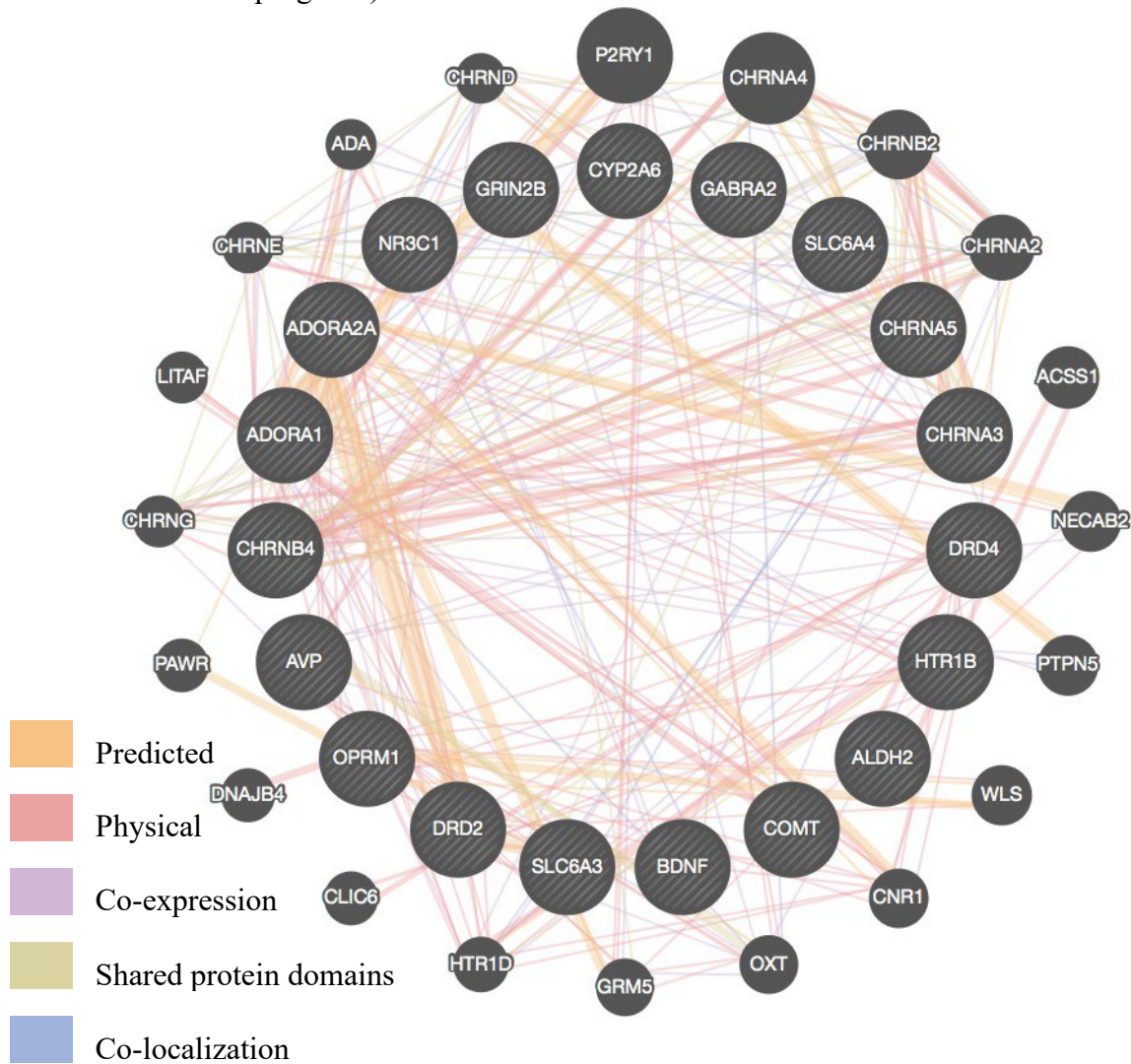
Caffeine stimulates the central nervous system and affects dopaminergic and adenosinergic pathways, in which epigenetic mechanisms may be involved. For example, long-term caffeine or energy-drink consumption may lead to DNA-methylation changes in promoter regions of specific genes, altering sensitivity in dopaminergic, serotonergic, or adenosinergic pathways and increasing dependence risk. Certain microRNAs may regulate caffeine metabolism or neurotransmitter systems linked to dependence. Histone modifications can also influence synaptic plasticity and reward mechanisms, supporting addictive behaviors. In short, dependence on caffeine and energy drinks is shaped not only by environmental and behavioral factors but also by epigenetic changes, helping explain individual differences in risk.

CONCLUSION

In sum, addiction is a complex biological process in which genetic predisposition converges with environmental stressors through epigenetic pathways. Inherited genetic variations determine individual susceptibility, while environmental factors (e.g., trauma, stress, social context) modify

gene expression via epigenetic mechanisms, triggering or reinforcing addictive behaviors. Therefore, it is crucial to consider both genetic and epigenetic regulation together in understanding and treating addiction.

Figure 1: A genetic map showing the interaction network among genes related to substance dependence. The colors indicating the types of relationships are described below. (Generated using the GeneMANIA program.)



Chapter 3

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ENVIRONMENTAL, SOCIAL, CULTURAL, ECONOMIC, AND FAMILY EFFECTS OF ADDICTION

Addiction is a chronic condition in which a person loses control over the use of a substance or behavior and develops both a physical and psychological need for it. Today, addictions are not limited to alcohol, cigarettes, and drugs; they also appear in areas such as technology, gambling, shopping, eating, and even social media. Therefore, addiction has become a multifaceted public health issue that affects an individual's lifestyle, surroundings, and the overall functioning of society.

Addiction cannot be viewed merely as a personal weakness or a lack of willpower. On the contrary, it is a complex process formed by the interplay of environmental, social, cultural, economic, and family factors.

This section examines the effects of addiction across these dimensions in detail and explains how it constitutes a problem domain at the societal level.

1. Environmental Effects

The environment is one of the strongest determinants in the emergence of addiction. The setting in which a person is raised, family, peer group, school climate, neighborhood, and social milieu directly influence susceptibility to addiction. Risky environmental conditions include low socioeconomic status, high unemployment, a high density of entertainment venues, easy access to substances, and the normalization of substance use in society. It has been observed that individuals with addiction are more prevalent in regions with low income and low levels of education. The main reasons are low life satisfaction, inadequate coping strategies for stress, and weak social support networks.

For example, in areas where alcohol and drugs are easily obtainable and unemployment is high, the likelihood that young people will engage in risky behaviors increases. Media and advertising

can also be counted among environmental factors. The indirect promotion of tobacco and alcohol brands (through film scenes, social media content, etc.) leads individuals to develop positive attitudes toward substances often without being aware of it.

On the other hand, the effects of individuals with addiction on their environment cannot be ignored. With substance use, crime rates in the surrounding area rise, the sense of security declines, and environmental pollution increases (e.g., cigarette butts, bottles, discarded syringes). This creates negative role models, especially for children and adolescents. In short, there is a reciprocal interaction between addiction and environment: the environment fuels addiction, and addiction degrades the environment.

2. Social Effects

The social effects of addiction are felt at both individual and societal levels. Over time, the person with addiction withdraws from their social circle, their performance at work and school declines, and they become unable to fulfill responsibilities. This process distances the individual from society and leads to increasing isolation. Society's negative attitudes toward people with addiction (stigma, exclusion, othering) deepen this isolation. An ostracized individual hesitates to seek treatment, pulls away from social support services, and finds it more difficult to break the cycle of addiction.

At the societal level, addiction leads to the disruption of social order and to outcomes such as increased crime rates, domestic violence, workplace accidents, and traffic accidents. For example, alcohol addiction is one of the leading causes of traffic accidents in many countries. Addiction also harms the productive segment of society, causing economic losses by reducing labor participation and productivity.

The erosion of social trust, a decline in solidarity, and the breakdown of empathetic bonds between individuals are indirect harms that addiction inflicts on the social fabric. In short, addiction is a phenomenon that damages not only the individual but also the social fabric of society.

3. Cultural Effects

The cultural context of addiction varies greatly from one society to another. Each society's system of values, religious beliefs, traditions, and way of life shape its approach to addiction. For instance,

while alcohol use is accepted as part of social life in some Western societies, in societies like Turkey that place importance on cultural and religious values, this behavior is generally seen as contrary to social norms.

However, globalization and digital media culture increasingly blur these boundaries. Especially among young people, social media and popular culture can frame alcohol or tobacco use as symbols of “freedom,” “relaxation,” “fun,” or “status.” This results in changes to cultural norms and the normalization of risky behaviors.

Culture also plays a defining role in the struggle against addiction. In societies with strong family ties, individuals can often be directed to treatment with the support of their families; yet, because addiction may be concealed, professional help can be delayed. Therefore, cultural factors can be both protective and risk-enhancing.

4. Economic Effects

Addictions cause serious economic losses at both individual and societal levels. From the individual’s perspective, a person with addiction spends a significant portion of their income on the substance; work performance declines, the risk of unemployment rises, and economic independence is lost. This leads to a chain of outcomes such as impoverishment, indebtedness, and dependence on social assistance.

At the general and global scale, the economic burden of addiction is quite large. The budgets that governments allocate to healthcare systems, security measures, and treatment and rehabilitation centers reach into the billions of dollars. According to World Health Organization data, the annual cost of alcohol and tobacco use to the world economy exceeds approximately 1 trillion USD. Similarly, in Turkey, the indirect costs of addiction (loss of labor, healthcare expenditures, social support outlays) constitute a serious economic burden.

Addictions also reduce the productive workforce and squander the potential of the young population. In the long term, this is a factor that slows the pace of development. Thus, addiction is not only an individual health problem but also a structural issue that threatens economic sustainability.

5. Family Effects

The deepest marks of addiction are often seen within the family. The family is an individual's most fundamental source of social support. However, addiction weakens this support system and can even cause it to collapse entirely. Changes in the behavior of the person with addiction (aggression, indifference, impulsivity, dishonesty, etc.) lead to serious conflicts in family relationships.

Trust between partners is lost, communication breaks down, and the risk of domestic violence increases. Children experience emotional trauma in such environments. A child of a parent with addiction may become anxious, withdrawn, or display aggressive behaviors. Research also shows that children of parents with addiction have a higher propensity for substance use. This points to the intergenerational transmission of addiction.

The family's economic situation is directly affected as well. Job loss, reduced income, and treatment expenses place families in financial hardship. During this process, family members often experience feelings of helplessness, guilt, and burnout. Therefore, family-centered approaches are of great importance in combating addiction, because it is not only the individual but the entire family system that must be restructured.

CONCLUSION

In conclusion, addiction has a broad social, cultural, and economic foundation that cannot be reduced to an individual choice or a character weakness. Unfavorable environmental conditions, lack of social support, cultural change, economic difficulties, and intrafamilial conflict are both causes and consequences of addiction. To break this cycle, all segments of society (government, families, educational institutions, the media, and non-governmental organizations) must wage a joint effort. Addiction is not merely a health problem; it is a holistic social issue with cultural and economic dimensions.

Preventive policies, awareness campaigns, psychosocial support services, and the expansion of rehabilitation centers are of critical importance in the fight against addiction. Addiction is a chain process that threatens not only the life of the individual but also the future of society.

Chapter 4

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WHAT IS OPIATE (OPIOID) ADDICTION?

Opiates (opioids) are a class of painkillers derived from the poppy plant that contain morphine, produce a relaxing effect, and can lead to dependence over time; regular use results in Opiate (Opioid) Addiction. Heroin, codeine, morphine, methadone, and buprenorphine (Suboxone, Subutex), etc., are in the opiate class.

1. Treatment of Opiate (Opioid) Addiction

Opiates are very effective in relieving pain and have historically been used for acute and severe chronic pain and postoperative pain, such as in cancer. During medical treatment, people may develop dependence on opiates. We also observe that healthcare workers with access to these medications and people connected to medical providers can develop opiate (opioid) addiction. Long-term use of these drugs leads to tolerance meaning that, to feel the effect, a person eventually needs to increase the dose. This is how opiate (opioid) addiction develops.

Among people with opiate (opioid) addiction, heroin is the most commonly used substance. Morphine was once produced to be used as a medication for example, in tuberculosis treatment but when it was found to cause severe dependence, its sale as a drug was discontinued and its use prohibited.

Methadone is a synthetic opiate produced for the treatment of heroin dependence. It is widely used as a substitution therapy for heroin addiction in the UK, the USA, Australia, and several European countries. As people began to develop dependence on methadone, Suboxone was produced to be used in heroin treatment.

Suboxone is a combination of buprenorphine and naloxone. It was developed with the aim of having a lower potential for misuse. In Turkey, it is used in substitution therapy. Like methadone, Suboxone blocks the brain's opioid receptors, closing the entry points where heroin would bind.

In short, both medications were developed to prevent heroin withdrawal and craving; however, if misused, they are drugs that can themselves lead to dependence.

2. Risk Factors for Developing Opiate (Opioid) Addiction

Risk factors for opiate (opioid) addiction can be genetic, environmental, or lifestyle-related. From a genetic perspective, some individuals appear more prone to dependence. In addition, a prior history of substance use, depression or other psychiatric disorders, experiences of neglect and abuse in childhood, certain personality traits (impulsivity, sensation-seeking), low socioeconomic status, being in contact with people who misuse opiates or have other substance addictions, easy access to prescription or illicit opiates, etc., are all risk factors for developing opiate (opioid) addiction. The combination of these factors creates a higher overall risk.

3. How to Tell if Someone Has Opiate (Opioid) Addiction

In summary, diagnostic criteria include: using opiates in larger amounts or for longer than intended; unsuccessful efforts to cut down; spending a great deal of time obtaining or using opiates; experiencing strong cravings; difficulty fulfilling responsibilities; continued use despite social or interpersonal problems; giving up important activities; using in physically hazardous situations; continued use despite physical or psychological problems caused or worsened by use; needing higher doses to feel the effect (tolerance); and experiencing withdrawal when not using.

If at least two of the above occur within a twelve-month period, a diagnosis of opiate (opioid) use disorder can be made. (Refer to the original diagnostic criteria in the DSM.)

4. Problems Caused by Opiate (Opioid) Addiction

Opiate (opioid) addiction is a chronic disease that can lead to physical, social, and economic problems.

Physically, opiate (opioid) addiction causes severe withdrawal symptoms, which in themselves are a major problem for people with addiction. Opioid withdrawal may include widespread body aches, abdominal pain, diarrhea, sweating, bone, joint and muscle pain, insomnia, intense craving, dilated pupils, restlessness, yawning, tearing, runny nose, sneezing, and loss of appetite. Similar withdrawal symptoms occur with all opiates, but the timing and severity vary by type. In the long

term, opiate (opioid) addiction affects breathing, digestion, and blood pressure. It can cause constipation, stomach spasms, dizziness, and tooth decay. An overdose can slow heart and breathing rates to dangerous levels and may be fatal.

Beyond this, opiate (opioid) addiction causes difficulties at work and negatively affects relationships with loved ones.

5. Common Co-Occurring Psychological Problems

The likelihood of a psychiatric disorder co-occurring with opiate (opioid) addiction is very high. Depression, generalized anxiety disorder, panic disorder, attention-deficit/hyperactivity disorder, bipolar disorder, post-traumatic stress disorder, and sexual dysfunctions are among the most common psychological problems seen with opiate (opioid) addiction. People with opiate (opioid) addiction may also experience sleep problems and be at risk for suicide.

6. How Is Opiate (Opioid) Addiction Treated?

Treatment for opiate addiction is inpatient. For this treatment, the person must voluntarily agree to be admitted. Within the framework of the Rapid Detoxification Program (HAP), patients are hospitalized and undergo a 4-night/5-day detox period. Depending on the type of opiate to which the person is dependent, the length of stay may be extended. During this process, withdrawal symptoms are monitored daily.

Alongside IV fluids and medications to support discontinuation of opiates, psychological support should also be provided. Risk situations that may lead a person back to opiate use, relapse prevention, and craving management techniques should be emphasized. In addition, patients with opiate (opioid) addiction should receive addiction-related testing, psychoeducation, and group therapy. Patients should also be directed toward psychosocial activities (exercise, art therapy, etc.) that aid recovery.

During treatment for opiate (opioid) addiction, implant (chip, pellet) therapy may be used. If, for any reason, a patient does not receive implant therapy, medication treatment may be provided.

Implant therapy helps prevent craving in people with opiate addiction. The effect of the implant is approximately six months. Recovery in opiate addiction typically occurs over about one year.

Timely and continuous implant therapy allows a person with opiate addiction to reach the necessary period of abstinence and protects them against opiate use.

Stopping opiate use is an important step, but not sufficient alone for recovery. Opiate (opioid) addiction is a chronic disease that requires lifelong precautions. Therefore, people need to make lifestyle changes that prevent relapse (staying away from friends who use, avoiding neighborhoods/areas risky for substance use, maintaining a structured daily routine to stay occupied, paying attention to physical activity and nutrition, etc.). After medication treatment, people with opiate addiction must continue with psychological treatment; it is important to attend psychiatric evaluations and talk therapy at regular intervals.

7. What Is the Rapid Detoxification Program (RDP)?

“Rapid detoxification” aims to provide symptomatic relief that allows patients to tolerate the procedure. It is the process of accelerating withdrawal from heroin (or other opioids) through the administration of an opioid antagonist. HAP is not a routine treatment; it is a method that should be used in patients who require short-term hospitalization. In HAP, a treatment plan is tailored for each patient. Rather than using it alone, it must be combined with long-term psychosocial treatment.

Opioid withdrawal can include widespread body pain, abdominal pain, hot and cold flashes, bone, joint and muscle pain, insomnia and/or disturbed sleep, cramps, intense craving for opioids, restlessness, yawning, tearing, sneezing, and loss of appetite.

Those who will join the HAP program must come voluntarily and agree to be hospitalized. Participation under family or relative pressure is unlikely to yield positive results. Patients with good social support and no depression tend to show much greater improvement in such programs.

Withdrawal symptoms are monitored daily. Psychosocial support is initiated, including group therapy, individual psychoeducation, and artistic activities. A complementary treatment is the subcutaneous placement of the most effective opioid antagonist, the naltrexone implant, in the abdominal area. The implant’s duration of effect is six months. By binding to opioid receptors in the brain, the naltrexone implant blocks heroin craving and withdrawal. When the implant’s effect

ends, relapse can occur; therefore, it is recommended that the implant be repeated consecutively for at least one year rather than used only once, to provide sustained protection.

8. Advice for Relatives of a Person with Opiate (Opioid) Addiction

Educate yourself about opiate (opioid) addiction and read reliable sources on the subject. Ask your loved one's psychiatrist or psychologist to inform you about addiction. Opiate (opioid) addiction is a disease characterized by recovery and relapse prepare yourself for a long treatment process. Cooperate and stay in communication with the treatment team.

It is meaningful to encourage the person with opiate (opioid) addiction to remain in treatment at all times. Quitting opiates alone is not enough track appointment dates and encourage regular attendance with psychologists and physicians.

As a family, it is important to support the person with opiate (opioid) addiction, listen without judgment, and convey your understanding. Family relationships weaken with addiction. Build a relationship that is not only about addiction. Plan activities together. While your loved one is in treatment, consult them about any changes you are considering (moving house, changing phone numbers, contacting friends, etc.) and make decisions together. Likewise, after quitting opiates, help them plan a life that leaves little idle time (finding a job, giving certain duties and responsibilities, etc.).

Instead of focusing on the past, pay attention to what can be done now and look to the future. Focus on what can be done to make the present as good as possible with the person who has opiate (opioid) addiction.

CONCLUSION

The process of opiate (opioid) addiction wounds the entire family and can lead family members toward unhelpful behaviors. Avoid hurtful words and accusatory attitudes toward the person with opiate (opioid) addiction. Keep your focus on what should be done to prevent later opiate use. Remember that patients and family members can receive free therapy support from YEDAM (The Turkish Green Crescent Counseling Centers).

Avoid frequently asking the person with opiate (opioid) addiction whether they have relapsed; this can trigger them and lead to a slip. If you are certain your loved one has relapsed, offer them treatment.

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Chapter 5

Author: Suleyman HEKIM, PhD

WHAT ARE ADDICTIVE SUBSTANCES?

Addictive substances are chemicals that negatively affect individuals' physical health, mental state, and social relationships; their use gradually becomes uncontrollable and quitting them is very difficult. These substances affect the brain's reward system by increasing dopamine release. Dopamine is a neurotransmitter that produces feelings of pleasure and enjoyment. For this reason, while substance use may create a pleasant sensation in the short term, in the long term it drives the person to use repeatedly and initiates the cycle of addiction.

According to 2021 data from the World Health Organization (WHO), approximately 296 million people worldwide used psychoactive substances. Of these, 39.5 million experienced a substance use disorder. These disorders cause the deaths of roughly 600,000 people each year and, beyond individual health problems, impose serious social and economic costs on society. Reduced productivity, increased healthcare expenditures, and rising crime rates are just a few of the societal impacts of substance addiction.

The aim of this booklet is to raise awareness about substance addiction, inform individuals and families, and emphasize the importance of early intervention. Informed individuals can protect their own health and better manage risks around them. Remember: substance addiction is preventable and treatable. Being informed is one of the strongest defense mechanisms in this process.

1. Classification of Addictive Substances

Addictive substances are grouped according to their effects. Each group acts differently on the central nervous system, altering a person's behavior, way of thinking, and emotional state. They can be classified as follows:

- **Stimulants:** These substances stimulate the central nervous system, increasing energy and alertness. They often temporarily improve attention and focus, but can lead to serious health problems in the long term. Examples include cocaine, amphetamines, and ecstasy.
- **Depressants:** By slowing the activity of the nervous system, they produce relaxation, calm, and drowsiness. Excessive use can cause life-threatening issues such as respiratory arrest. Alcohol, benzodiazepines (e.g., diazepam, lorazepam), and barbiturates fall into this group.
- **Hallucinogens:** Substances that distort perceptions and the sense of reality. Users may experience sights, sounds, or sensations that are not real. Examples include LSD, psilocybin mushrooms, and ketamine.
- **Opioids:** These substances have powerful pain-relieving effects and also produce intense euphoria. Although they are used for medical purposes, misuse can lead to severe addiction and fatal overdoses. Heroin, morphine, fentanyl, and oxycodone are included in this group.
- **Other Substances:** This category covers substances with addictive potential that do not fit neatly into the other classes. For example, inhalants (such as paint thinner and lighter gas) and cannabinoids (cannabis and its derivatives). Especially common among young people, these substances can adversely affect brain development.

Addictive substances are also divided into legal and illegal categories. However, this distinction does not eliminate the risk of addiction. For instance, although alcohol and tobacco are legal and widely used, they carry serious addiction risks and can have devastating long-term health effects. Illegal substances, on the other hand, often produce faster and stronger dependence and expose users to legal consequences.

This classification is important for understanding the effects of addictive substances and assessing their risks. While each type has a different mechanism of action, what they share is their potential to reduce quality of life and lead to addiction.

2. Legal Addictive Substances

Some substances that can be legally obtained are widely used in society and therefore pose addiction risks. Their easy accessibility can create the perception that they are harmless; however, long-term use can lead to serious health problems and addiction. The most common legal addictive substances include:

2.1. Alcohol

Alcohol is known as a depressant that suppresses the central nervous system. In the short term, it may produce relaxation, increased social confidence, and euphoria. However, excessive and continuous use can cause serious health problems such as liver cirrhosis, brain damage, heart disease, and psychiatric disorders. Alcohol addiction presents with physical and psychological withdrawal symptoms, including tremors, hallucinations, anxiety, and seizures. According to the World Health Organization, alcohol dependence accounts for about 5% of global deaths. Behavioral therapies and medications such as disulfiram may be used in treatment.

2.2. Nicotine (Tobacco Products)

Nicotine is found in tobacco products primarily cigarettes and in e-cigarettes. In the short term, it may increase alertness and reduce stress. In the long term, however, it leads to serious health problems such as lung cancer, cardiovascular disease, and chronic obstructive pulmonary disease (COPD). Nicotine has one of the highest addiction potentials among substances. Withdrawal symptoms include irritability, anxiety, difficulty concentrating, and weight gain. Nicotine replacement products (gum, patches) and behavioral support programs are effective in treatment.

2.3. Caffeine

Caffeine is a stimulant found in coffee, tea, energy drinks, and some medications. In the short term, it increases alertness and attention and reduces fatigue. Excessive consumption can cause insomnia, irritability, palpitations, and anxiety. Caffeine addiction is generally mild; withdrawal may include headache, fatigue, and difficulty concentrating. Although usually considered harmless, overuse can pose health risks.

2.4. Prescription Medications

Some prescription drugs used for medical purposes carry addiction risks when used incorrectly or for prolonged periods:

- **Opioid Analgesics (e.g., oxycodone, codeine):** Known for powerful pain relief. They also produce euphoria and sedation. Long-term use can result in respiratory depression, overdose, and death. Withdrawal may include muscle aches, sweating, nausea, and anxiety.

- **Benzodiazepines (e.g., alprazolam – Xanax):** Commonly used to treat anxiety and insomnia. They promote relaxation and reduce anxiety. Long-term use can lead to memory problems, psychomotor impairment, and dependence. Withdrawal can include increased anxiety, insomnia, and seizures.
- **Barbiturates:** Now rarely prescribed, these were widely used in the past. Due to high addiction risk and overdose danger, their use has been largely restricted.

Legality does not mean safety. Informed use, medical supervision, and professional support when needed are critical to minimizing harm.

3. Illegal Addictive Substances

Illegal addictive substances are chemically controlled by law; their use, possession, and distribution are prohibited. They are typically obtained on the street through illicit channels. Their use causes serious health and safety problems at both individual and societal levels, and their use and trade bring legal sanctions.

3.1. Opiates

- **Heroin:** Known for strong pain relief and euphoria, heroin has one of the highest addiction potentials. It is often used by injection, which adds risks such as infections, liver damage, and vascular disease. Withdrawal symptoms are severe, including flu-like complaints, muscle pain, sweating, and intense restlessness. According to the U.S. National Institute on Drug Abuse (NIDA), heroin is central to the opioid crisis.
- **Fentanyl:** A synthetic opioid 50 to 100 times stronger than heroin. Although used medically, illicit production and sale pose a major public health threat. Even small doses carry a very high risk of overdose and can be fatal.

3.2. Cocaine and Crack Cocaine

Cocaine stimulates the central nervous system. In the short term, it produces increased energy, euphoria, and self-confidence. Long-term risks include heart attack, stroke, psychosis, and severe addiction. During withdrawal, depression, fatigue, and loss of motivation are common. Crack

cocaine is a form of cocaine that produces faster and more intense effects when smoked and has a much higher addiction potential.

3.3. Amphetamine and Methamphetamine (Crystal Meth)

These are powerful stimulants. Use produces wakefulness, increased energy, and loss of appetite. Long-term use can cause severe psychosis, extreme irritability, tooth decay (“meth mouth”), and heart disease. Addiction potential is high; withdrawal may involve depression, anxiety, and extreme fatigue.

3.4. Cannabinoids

- **Cannabis (Marijuana):** Often produces relaxation, increased appetite, and mild euphoria. Especially in young people, it may lead to adverse effects such as memory problems, lack of motivation, and risk of psychosis. Addiction potential is moderate; withdrawal may include irritability, insomnia, and loss of appetite.
- **Synthetic Cannabinoids (“K2/Spice”):** Laboratory-produced substances intended to mimic cannabis effects, but they are far stronger and more dangerous. Use can lead to hallucinations, severe agitation, seizures, and even sudden death.

3.5. Hallucinogens

- **LSD (Lysergic Acid Diethylamide):** Causes altered perceptions, hallucinations, and detachment from reality. Users may experience “bad trips” characterized by fear and paranoia. Although physical dependence risk is low, psychological effects can persist.
- **Psilocybin (Magic Mushrooms):** Produces perception changes similar to LSD. Some therapeutic uses are being researched in recent years. However, uncontrolled and uninformed use can cause psychological disorders.

3.6. MDMA (Ecstasy)

MDMA has both stimulant and hallucinogenic effects. During use, one may experience increased empathy, elevated energy, and emotional openness. Overuse carries risks such as dehydration,

dangerous increases in body temperature, brain damage, and prolonged depression. Addiction potential is moderate.

3.7. Inhalants (Volatile Substances)

Paint thinner, gasoline, and lighter gas are often misused, especially by children and adolescents, due to easy accessibility. Short-term effects include dizziness, euphoria, and confusion. Long-term use can lead to brain damage, organ failure, and sudden death. Addiction potential is high.

3.8. New Generation Synthetic Substances

- **Flakka, Bath Salts:** Recently emerged synthetic drugs whose effects are not fully understood. Use can lead to severe psychosis, hallucinations, hyperthermia, and violent behavior. Addiction potential is very high.
- **Ketamine:** Initially used as an anesthetic, ketamine produces dissociative effects making a person feel detached from their body and surroundings. Long-term use has been associated with memory problems, urinary tract damage, and dependence.

4. An Informed Society Against Addiction

Substance addiction is a serious public health problem that threatens the quality of life not only of the individual but also of their family and society as a whole. Genetic predisposition, environmental conditions, and psychological factors can increase a person's risk of addiction. Addictive substances affect the brain's dopamine system, leading to tolerance and, over time, to physical and psychological dependence. Physical dependence manifests with withdrawal symptoms, while psychological dependence leads to intense craving for the substance.

CONCLUSION

The consequences of addiction are multifaceted and destructive:

- **Health:** Severe medical problems may arise, including organ damage, infectious diseases (HIV, hepatitis), cardiovascular diseases, and cancer.

Social: Addiction can cause family conflicts, social isolation, job loss, and increased crime rates.

Economic: Treatment processes are costly. Worldwide, millions of healthy life-years are lost each year due to substance addiction.

Combating addictive substances is not only an individual but also a societal responsibility. Our strongest tools in this fight are knowledge, awareness, and early intervention. Addiction is preventable and treatable. Therefore, it is crucial for both individuals and society to become informed.

If you or a loved one is struggling with substance addiction, you are not alone. Healthcare institutions, psychological counseling centers, and anti-addiction organizations are ready to help.

Let us remember: a healthy society is possible with informed individuals. Saying “no” to addiction and “yes” to a healthy future is one of the most important steps we can take for ourselves and our loved ones.

Chapter 6

Author: Hatice DEMIR, PhD.

SUBSTANCE ADDICTION: A SOCIETAL THREAT AND A PREVENTABLE REALITY

In today's world, substance addiction has become a global public health issue that affects not only individuals but also families, communities, and even generations. In modern life where technology, communication, and social pressures are intensifying people increasingly have to cope with stress, anxiety, and loneliness; some turn to harmful substances to escape these emotional burdens. Yet addiction is not merely a "bad habit"; it is a chronic disease that causes lasting changes in the brain, body, and behavior. For this reason, understanding substance addiction requires a process of raising awareness that concerns not only users but society as a whole.

1. What Is Substance Addiction?

Substance addiction is defined as the repeated use of a particular substance (e.g., alcohol, tobacco, stimulants, sedatives, or illicit drugs) despite knowing its harms, coupled with unsuccessful attempts to quit. This condition creates both physical and psychological dependence. With physical dependence, the body adapts to the substance and withdrawal symptoms such as tremors, sweating, and insomnia occur when it is not taken. With psychological dependence, the individual feels a need for the temporary relief or pleasure the substance provides.

At the brain level, substance use increases dopamine release in the "reward system," producing a short-lived sense of pleasure. Over time, however, the brain adapts to these chemicals and requires higher doses to achieve the same effect. Thus, the addiction cycle begins: use – pleasure - withdrawal- reuse. The World Health Organization (WHO) defines addiction as a "chronic brain disease characterized by recurrent and uncontrollable substance use."

2. How Addiction Develops

Addiction often begins with curiosity or experimentation in a social setting. At first, a person may use the substance solely for fun or relaxation. Over time, the frequency of use increases and the substance becomes an indispensable part of daily life. In this process, the individual first loses control, then develops both physical and psychological dependence.



Drug Trial:
Substance use often begins out of curiosity, through peer influence, or for social reasons.



Social Use:
Consumption remains controlled; the influence of the social environment increases.



Misuse/Abuse:
Using the substance to cope with emotional or psychological problems; loss of control begins.



Addiction:
Physical and psychological dependence develop; the brain's reward system is now dependent on the substance.



Withdrawal:
Physical and psychological symptoms emerge when the substance is not taken.



Relapse (Return to Use):
Returning to the substance to prevent withdrawal symptoms or to re-experience the high/pleasure.

This cycle can also emerge during treatment; after periods of abstinence, the person may return to use. Therefore, addiction treatment is a long-term process that requires patience and support.

3. Factors Influencing Addiction

The causes of addiction cannot be explained by a single dimension; biological, psychological, social, and environmental factors are interwoven.

3.1. Biological Factors: Some individuals are genetically more susceptible to addiction. Having a family history of addiction can double the risk. In addition, how neurotransmitter systems in the brain (especially dopamine) function can increase vulnerability. Because the brain is still developing during adolescence, starting substance use at a young age significantly raises the risk.

3.2. Psychological Factors: Mental health conditions such as depression, anxiety disorders, and post-traumatic stress disorder can predispose individuals to addiction. Emotional deprivation, low self-esteem, or weak stress-coping skills also make turning to substances more likely.

3.3. Social and Environmental Factors: Peer pressure, poor family communication, unloving environments, and social stressors (unemployment, poverty, loneliness) are strong external

triggers. Young people, in particular, may start using substances to feel a sense of belonging to a group.

3.4. Cultural Factors: Societal attitudes toward substance use, media role models, and even certain traditional practices play important roles in the fight against addiction. In some societies, the normalization of alcohol or tobacco use can unwittingly open the door to dependence.

4. Consequences of Addiction

Substance addiction seriously affects both an individual’s physical health and social life. Prolonged use can cause lasting damage to vital organs such as the heart, liver, and lungs. Cognitive functions also deteriorate, and problems with attention and memory emerge.

Psychologically, depression, paranoia, aggression, anxiety, and personality disorders are common. At the societal level, one observes broken family relationships, job loss, economic problems, and increases in crime rates. Therefore, substance addiction is not only an individual health problem but also a social crisis.

Domain	Type of Impact	Example Outcomes
Physical Health	Organ damage	Liver failure, cardiovascular diseases
Mental Health	Psychiatric disorders	Depression, anxiety, hallucinations
Social Life	Family and work relations	Job loss, domestic violence, social exclusion

5. Combating Addiction and Protective Factors

Combating addiction must take place at individual, institutional, and societal levels. The most critical first step is recognizing substance use and seeking help. Attempts to quit without professional support often relapse in a short time. Treatment includes medical, psychological, and social support components. In Turkey, institutions such as The Turkish Green Crescent (YEDAM) and Alcohol and Substance Addiction Treatment Center (AMATEM) provide important services in this field. Protective factors include strong family bonds, social support, awareness education,

positive role models, and building stress-coping skills. University-level seminars on addiction and student support centers help increase awareness among young people and prevent addiction.

CONCLUSION

Substance addiction is not a personal weakness; it is a complex disease at the intersection of biological, psychological, and social factors. Everyone is at risk; therefore, awareness, prevention, and early intervention are of vital importance. Each awareness-raising effort we undertake as a society can save a young person's life. Approaches grounded in scientific knowledge free of prejudice and rich in empathy are our strongest tools in the fight against addiction.

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Chapter 7

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LEGAL RESPONSIBILITIES ARISING FROM SUBSTANCE USE

Today, substance addiction has gone beyond being merely an individual health problem and has become a major social issue with societal, legal, and economic consequences. The increase in substance use especially among young people has led governments to adopt stricter regulations and impose various sanctions. In Turkey, substance use and its legal consequences are detailed primarily within the framework of the Turkish Penal Code (TPC) and other relevant legislation.

The use of narcotic and psychotropic substances does not only harm the individual; it also disrupts social order, endangers public safety, and leads to an increase in crime rates. Therefore, substance use cannot be considered merely a “personal choice,” and various legal consequences are inevitable.

1. Regulation of Substance Use as a Crime

1.1. TPC Art. 191 – Purchasing, Accepting, or Possessing Narcotic or Psychotropic Substances for Personal Use

Article 191 of the Turkish Penal Code regulates the criminal liability of persons who “purchase, accept, or possess narcotic or psychotropic substances for personal use.” According to the article:

“A person who purchases, accepts, or possesses narcotic or psychotropic substances for personal use shall be punished with imprisonment from two to five years.”

However, under this provision, the legislator’s aim is not solely to punish but also to prioritize the rehabilitation of the user. Therefore, for first-time offenders, the court may order treatment and probation/supervised release measures instead of imposing a sentence. During the probation period, the person receives treatment to overcome dependence and is regularly monitored.

If the obligations are not complied with during probation, imprisonment may be imposed. Likewise, if the person repeats the offense, the likelihood of facing a direct custodial sentence increase.

1.2. TPC Art. 188 – Production and Trafficking of Narcotic or Psychotropic Substances

Article 188 of the TPC governs drug trafficking, which carries far more severe penalties than personal use. This provision criminalizes and prohibits the:

- Production,
- Import and export,
- Sale,
- Transportation,
- Storage

of narcotic or psychotropic substances.

According to the article:

“A person who produces or traffics in narcotic or psychotropic substances shall be punished with imprisonment of not less than ten years and additionally with a judicial fine of up to twenty thousand days.”

Aggravating circumstances include, among others:

- Commission of the offense in an organized manner,
- Commission by a public official,
- Commission in places such as educational institutions or houses of worship.

The distinction between a user and a seller/producer is crucial both legally and in practice. There is a significant difference between possession for personal use and possession for the purpose of trafficking.

2. Other Legal and Administrative Consequences

2.1. Sanctions Under Traffic Law

Driving under the influence of narcotics is subject to severe sanctions under the Highways Traffic Law. In such cases, the person may face:

- Administrative fines,
- Temporary confiscation of the driver's license,
- Revocation of the license upon repetition,
- Mandatory drug testing and rehabilitation obligations.

If an accident occurs under the influence, prosecution for intentional injury or intentional homicide may also be possible.

2.2. Sanctions for Public Officials and Students

Substance use is considered an administrative disciplinary offense, especially for public officials. If a public employee is found to have used narcotics, sanctions may include:

- Warning or reprimand,
- Stoppage of grade advancement,
- Dismissal from public service.

Stricter rules apply to military personnel and law enforcement officers.

For students, educational institutions may initiate disciplinary proceedings, which can result in:

- Warning,
- Reprimand,
- Suspension,
- Expulsion.

In cases involving minors, the Ministry of Family and Social Services may intervene and protective measures may be ordered.

2.3. Criminal Record

Offenses related to substance use and the resulting penalties are recorded in the individual's criminal record. These records can create significant obstacles in:

- Job applications,
- Entry into public service,
- Visa applications.

However, for individuals whose cases are closed without a conviction through probation/supervised release measures, criminal record entries may be deleted under certain conditions.

2.4. Children and Minors

When individuals under 18 use substances, the matter is evaluated not only under criminal law but also within the scope of the Child Protection Law. In this context, protective and supportive measures may include:

- Taking the child under protective care,
- Placement in state facilities,
- Referral to education and health services.

Moreover, adults who supply substances to children face much heavier criminal sanctions (TPC Arts. 190, 191/3).

CONCLUSION

The use of narcotic or psychotropic substances has consequences that extend beyond the individual to society. In Turkey, this behavior is comprehensively regulated with criminal, administrative,

and social dimensions, with the fundamental aim of the laws being not only to punish the individual but also to protect and reintegrate them into society.

However, repeated use or behaviors associated with dealing/trafficking lead to serious criminal sanctions. Therefore, in addition to legal penalties, a multifaceted strategy involving education, family support, social services, and health policies must be pursued.

It is of great importance for individuals to be informed, aware of their legal responsibilities, and to seek legal or psychological support when necessary both for their own well-being and for the maintenance of social order.

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Chapter 8

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ADDICTION UNDER TURKISH LAW: AN ASSESSMENT OF ITS LEGAL, PENAL, AND SOCIAL DIMENSIONS

This study examines the place of addiction within Turkish law and its legal consequences. Beyond being an individual health issue, the phenomenon of addiction has significant implications for public order, public safety, and individual rights. Although “addiction” is not defined directly in Turkish law, it is regulated indirectly particularly within criminal law, civil law, and health law. Below, we explain the legal character of addiction within the relevant legislation.

Keywords: Addiction, Turkish Penal Code, guardianship, right to treatment, public order, Alcohol and Substance Addiction Treatment Center (AMATEM).

1. Introduction

Addiction can be defined as a state in which an individual, contrary to their will, is drawn toward a substance, behavior, or condition, and this state adversely affects life functions (World Health Organization [WHO], 2019). Today, addiction is addressed not only as a medical problem but as a multifaceted phenomenon with social, economic, and legal dimensions. Although the concept of addiction is not defined directly in Turkish law, narcotics, alcohol, and other behavioral addictions are regulated across various legal texts.

2. The Legal Framework of The Concept of Addiction

Despite preventive measures, alcohol and substance addiction remains one of the most significant threats to human health today. Alcohol and substance use can increase tendencies toward crime and aggressive behavior. The detection of alcohol and substance use and addiction is of great importance before the law, and in Turkey, criminal responsibility and restrictions associated with addiction are determined by statutes.

In Turkish legislation, addiction appears in different contexts across different laws. The Turkish Penal Code (TPC) evaluates addiction as it relates to the offender's condition in certain offense types, while the Turkish Civil Code (TCC) treats addiction as an important factor in personal capacity and guardianship (Yılmaz, 2021). In addition, combating addiction is carried out under various administrative regulations with the aim of protecting public order.

3. The Criminal Law Dimension

3.1. Use of Narcotics and Addiction

Article 191 of the Turkish Penal Code provides for treatment and probation measures rather than punishment for persons who use narcotic or psychotropic substances (TPC, 5237/191). This provision reflects modern criminal policy that treats addiction as a disease rather than a crime (Court of Cassation General Criminal Assembly, 2018/12-345 E., 2019/123 K.).

3.2. Effect on Criminal Responsibility

Article 32 of the TPC states that persons who, due to mental illness or similar reasons, cannot comprehend the legal meaning and consequences of their act lack criminal responsibility. Where addiction is at an advanced stage and the offender's volitional capacity has been entirely eliminated, an evaluation may be made within the scope of this article (Centel & Zafer, 2022). However, case law of the Court of Cassation emphasizes that mere "weakening of will" does not remove criminal responsibility, though it may constitute a ground for sentence reduction.

4. Civil Law Dimension

Under Articles 405–406 of the Turkish Civil Code, if a person cannot properly manage their own affairs due to reasons such as "mental illness, prodigality, alcohol or narcotic substance addiction," a restriction order may be issued. In such cases, the person is placed under guardianship, and their personal and financial affairs become subject to the supervision of a guardian (Kılıçoğlu, 2020). This arrangement aims to protect both the addicted individual and those around them from adverse consequences arising from weakened willpower.

5. Administrative Law and Public Security Dimension

Combating addiction is not only a matter of individual treatment but is also crucial for the protection of public order. Law No. 3298 on Narcotic Substances sets out regulations concerning the production, import, export, and possession of narcotics. In addition, High Council for Combating Addiction action plans are implemented in cooperation with Yeşilay (The Turkish Green Crescent) and the Ministry of Health (Ministry of Health, 2024).

6. Health Law and the Right to Treatment

Because addiction is a health issue, it falls within the scope of the right to health guaranteed by Article 56 of the Constitution of the Republic of Turkey. The state is obliged to provide treatment to addicted individuals free of charge. In this context, institutions such as AMATEM (Alcohol and Substance Addiction Treatment Center) and CEMATEM (Child and Adolescent Substance Addiction Treatment Center) play an active role (The Turkish Green Crescent, 2023).

Alongside official state institutions, non-governmental organizations are also of great importance in the struggle against substance addiction. Founded in 2005 by a group of volunteers under the name UMUD, and operating since 2016 as the International Association for Combating Substance Addiction (UMUDDER), this NGO works domestically and abroad against the threat of substance addiction to our country, our people, and our future. UMUDDER's aim is to foster cooperation among public institutions, universities, local governments, and NGOs to combat substance addiction effectively; to eliminate risk factors through scientific research, analysis, and projects; and to carry out informative activities. UMUDDER also seeks to provide material and moral support to citizens in need regarding the fight against substance addiction and to assist with rehabilitation.

7. New-Generation Addictions and Legal Gaps

With technology and digitalization, new types of addiction such as internet, gaming, and social media addiction have emerged. These forms of addiction are not yet expressly defined in Turkish law. However, the protection of children in digital environments is addressed indirectly under Law No. 5651 and the Child Protection Law No. 5395 (Usta, 2022). This indicates a need for specific future regulations in Turkish law concerning digital addictions.

The principle of legality also recognized in the European Convention on Human Rights is a fundamental principle of criminal law. In accordance with this principle, controlled psychoactive substances must be clearly defined. No one may be charged for conduct that was not classified as a crime at the time it was committed. As a result of this provision, criminal law must be clear in areas classified as offenses before the European Court of Human Rights.

It has been observed that substances not expressly specified in criminal law or covered by statutes enacted for the fight against narcotics cannot be effectively controlled.

Offenses related to narcotic and psychotropic substances are regulated under Article 191 of the TPC. With the amendment made by Article 68 of Law No. 6545 dated 18.06.2014, “the use of narcotic and psychotropic substances” was added to the provision addressing “purchasing, possessing, and accepting for the purpose of use.”

This regulation is important for holding “the user” responsible for their actions and for preventing negative outcomes for individual and public health arising from substance use.

Another change of significance with respect to synthetic cannabinoids in legal processes occurred on 27 March 2015, when Article 188 of the TPC, titled “production and trafficking of narcotic or psychotropic substances,” was amended. While prohibiting and criminalizing the production and trafficking of such substances, the provision that “if the substance is heroin, cocaine, derivatives of morphine, or base morphine, the penalty shall be increased by half” was expanded by adding “derivatives of synthetic cannabinoids,” thereby increasing the penalties applicable to these substances as well.

Although the possession, trade, and production of these substances have been restricted by law, new “synthetic cannabinoid analogues” are continually introduced to circumvent legal barriers. As in the rest of the world, in Turkey too, new substances that produce similar effects but face no specific legal prohibition have increasingly appeared outside the roster of controlled psychoactive substances.

CONCLUSION

The Turkish legal system views addiction not merely as an individual weakness of will but as a problem with social and legal dimensions. Priority given to treatment in criminal law, the

guardianship mechanism in civil law, and the constitutional guarantee of the right to treatment in health law reflect this approach. Nevertheless, in the face of new-generation addictions, legal regulations need to be updated, and addiction must be addressed from a multidisciplinary perspective.

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Chapter 9

Author: Cigdem BAL, MSc.

DIGITAL ADDICTION

Technology is an inseparable and growing part of our lives. It is vital for functioning efficiently in many areas of life and, for many people, for making social connections. Our smartphones are indispensable for most of us. However, the excessive, compulsive, or uncontrolled use of various types of technology is an increasing cause for concern. Excessive and compulsive use of the internet or online activities can lead to negative consequences in multiple aspects of a person's life and may even result in digital addiction.

Digital addiction is a condition in which individuals become excessively dependent on digital devices (smartphones, tablets, computers) and digital content (such as social media, games, video platforms, and online shopping). Just like other addictions, digital addiction can negatively affect a person's daily activities, social relationships, and psychological health. Digital addiction (technology addiction) can include various forms of problematic online activity, including social media, gaming, gambling, problematic use of online pornography, and others.



1. Social Media Addiction:

The problematic and compulsive use of social media refers to an obsessive need to check and update social media platforms, which often leads to functional impairment and the deterioration of real-world relationships.

2. Internet Gaming Disorder:

Internet gaming disorder refers to the excessive use of online or video games and leads to the neglect of responsibilities and physical health.

3. Online Gambling:

Online gambling is another area of growing concern. A wide variety of games and sports-betting apps are increasingly easy to access. Gambling features are also being incorporated into other online activities such as gaming. Although gambling disorder is not new, increased availability via phone or computer raises new concerns.

4. Online Shopping or Auction Addiction:

Online shopping or auction addiction involves the urge, desire, or appeal of shopping online and repeatedly acting on this urge in ways that cause harm and dysfunction in various areas of life.

Some people especially those who use the internet heavily for socializing, education, and entertainment may be particularly vulnerable. However, technology addiction is not limited to any specific demographic group and is increasingly seen across different populations.

Children and adolescents may be especially vulnerable to technology addiction because their brains are still developing. According to the American Academy of Pediatrics' Center of Excellence on Social Media and Youth Mental Health, for some children and adolescent's social media and video games play an important role in relationships and experiences that affect their growth, development, and mental health. Among children and adolescents, the excessive and problematic use of social media and video games has the potential to become a behavioral addiction. This can negatively affect their psychological, physical, social, and developmental well-being. It may cause significant distress and contribute to other mental health problems such as anxiety, depression, and insomnia. Core factors underlying digital addiction include the need for

social approval, the pursuit of instant gratification, and easy access to digital content. Especially on social media platforms, feedback such as likes, comments, and follower counts affects the brain's reward mechanism by triggering dopamine release, which creates a sense of pleasure. People want to experience this instant gratification repeatedly and, as a result, feel a constant need to check their digital devices.

The findings of Data Reportal's January 2022 report supported by data from organizations such as GWI, Statista, GSMA Intelligence, App Annie, Semrush, Similar Web, and Locowise are important for understanding the impact of the digital world on our lives. According to this report, more than two-thirds of the world's population (67.1%) uses a mobile phone. By early 2022, this number reached 5.31 billion. Likewise, global internet users rose to 4.95 billion at the start of 2022. The data show that the number of internet users increased by 192 million in the previous year. As of January 2022, there were 4.62 billion social media users worldwide—58.4% of the global population. According to analyses by Kepios, the number of internet users has more than doubled in the last 10 years, rising from 2.18 billion at the start of 2012 to 4.95 billion at the start of 2022. These increasing figures show that the place of the digital world and social media apps in our lives is becoming more and more significant.

5. Signs of Digital Addiction

5.1. Behavioral Signs

5.1.1. Loss of Time Control

- Spending much longer on the internet or phone than planned
- Saying “just five more minutes” and then losing hours

5.1.2. Social Isolation

- Withdrawing from family, friends, or social activities
- Preferring online relationships to real-life relationships

5.1.3. Inability to Stay Away from Digital Devices

- Feeling uneasy or tense when the phone is off or not nearby

- Checking the phone right before sleep and first thing upon waking

5.1.4. Functional Impairment

- Neglecting school, work, or daily responsibilities
- Disrupted sleep patterns (e.g., staying on social media late into the night)

5.1.5. Withdrawal Symptoms

- Irritability, anxiety, restlessness when away from devices
- Outbursts of anger when access is blocked

5.2. Psychological Signs

5.2.1. Sense of Addiction

- Thoughts like “I can’t do without it,” “I need this”
- Trying to cut down but starting again

5.2.2. Pleasure and Tolerance

- Taking less pleasure in things that were initially enjoyable and needing more
- Seeking the same emotional satisfaction with more screen time

5.2.3. Escape from Reality

- Avoiding real-life problems and distress by being in the digital world
- Taking refuge in areas like online gaming or social media

5.3. Physical Signs

5.3.1. Eye Strain

- Prolonged screen time strains the eye muscles, causing dryness and difficulty focusing

5.3.2. Neck/Back Pain (Tech Neck)

- The habit of bending toward the screen causes muscle tension known as “tech neck”

5.3.3. Sleep Problems (Especially Due to Blue-Light Exposure)

- Blue light reduces melatonin production and makes it harder to fall asleep

5.3.4. Headaches, Fatigue, Distractibility

- Excessive screen brightness, eye strain, and lack of sleep trigger headaches
- Prolonged inactivity or sleep deprivation creates a sense of chronic fatigue
- Constant phone or keyboard use increases the risk of carpal tunnel syndrome
- Weight gain or loss; irregular eating and lack of physical activity affect metabolism
- Postural problems; the habit of slouching at the screen can lead to spinal curvature

6. Treatment Methods for Digital Addiction

Technology addiction is treatable. It can be managed with an appropriate treatment plan based on the person’s psychological condition. These treatments include:

- Psychotherapy support
- Cognitive-behavioral therapy (CBT)
- Group therapies
- Time-management strategies and limits on technology use
- Medical intervention
- Digital detox
- Physical activity and developing hobbies

CONCLUSION

Treatment methods for digital addiction can vary depending on the individual and the level of addiction. In general, psychological, behavioral, and in some cases medical approaches are used together.

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Chapter 10

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CAN ADDICTION BE TREATED? WHAT ARE THE TREATMENT METHODS?

Drug addiction is not merely a matter of willpower; this has been clearly demonstrated by science for many years. Today, addiction is defined as a chronic brain disease that durably alters the brain's chemistry and functioning. People often begin using substances out of curiosity, a desire for pleasure, or social influence. Over time, however, the substance affects the brain's reward and motivation systems and exerts strong control over behavior. At that point, even if the person does not want to use, intense craving and withdrawal symptoms can force continued use.

For this reason, viewing addiction as a “moral failing” or “character flaw” is both incorrect and stigmatizing. Like other chronic diseases (e.g., diabetes or hypertension), addiction is a health condition that requires diagnosis, treatment, and regular follow-up.

There is no single approach that works for everyone. Each person differs in patterns and duration of use, biology, social environment, motivation, and co-occurring mental or physical problems. Therefore, an effective treatment plan must be individualized. Typically, medications and psychosocial supports are used together and complement each other. While medications help re-stabilize brain chemistry, psychosocial support aims to repair thinking patterns, behaviors, and social relationships.

In general, addiction treatment involves three core phases:

- a. Detoxification:** Clearing the substance from the body and medically managing withdrawal.
- b. Treatment and Rehabilitation:** Addressing the physical, psychological, and social dimensions of addiction through individual or group therapies and medications.
- c. Social Support and Follow-Up:** Reintegration into society, strengthening social ties, and monitoring to prevent relapse.

This process usually unfolds over time and in stages. Experiencing relapse (return to substance use) does not mean treatment has failed; in most addiction treatments, recovery follows a fluctuating course. Continuity in care, supporting motivation, and managing relapses are therefore crucial.

1. Treatment Methods for Addiction

Addiction treatment is a multifaceted process aimed at protecting physical health, achieving abstinence, supporting psychosocial well-being, and facilitating reintegration. Because lasting success rarely comes from a single method, combining approaches matters. Today's interventions can be grouped into medical (pharmacological), psychosocial, and innovative adjunct methods.

1.1. Medical (Pharmacological) Treatments

Medical treatment aims to reduce biological dependence on the substance, control withdrawal, and lower relapse risk. Medication choice depends on the substance involved:

1.1.1. Opioid (e.g., Heroin, Morphine) Use Disorder

- *Methadone* and *buprenorphine* partially stimulate opioid receptors, reducing withdrawal and drug seeking. This is known as opioid agonist (substitution) therapy.
- *Naltrexone* is an opioid antagonist that blocks opioid effects. Even if a person uses, it prevents the “high,” thereby deterring reuse.

1.1.2. Alcohol Use Disorder

- *Disulfiram* produces a severe reaction (nausea, palpitations, flushing) if alcohol is consumed, discouraging use.
- *Acamprosate* and *Naltrexone* help reduce alcohol craving.

1.1.3. Nicotine Use Disorder

Nicotine replacement therapies (patches, gums, lozenges) and medications such as *bupropion* and *varenicline* are used.

Medication must be prescribed and monitored by qualified clinicians within a structured follow-up program. Medication alone is not sufficient; success improves when combined with psychosocial support.

1.2. Psychosocial Treatment Approaches

Psychosocial therapies help people understand their relationship with substances, change behaviors, and develop new coping skills especially critical for relapse prevention. Common approaches include:

1.2.1. Cognitive Behavioral Therapy (CBT): Identifies and changes thoughts and behaviors that lead to use.

1.2.2. Motivational Interviewing: Strengthens intrinsic motivation for change and improves engagement.

1.2.3. Group Therapy & Peer Support Groups: Shared experiences promote recovery through mutual support.

1.2.4. Family Therapy: Involving the family bolsters support and improves communication.

These approaches are typically delivered in long-term programs and continued during aftercare.

1.3. Social Support, Rehabilitation, and Follow-Up

Success depends not only on stopping use but also on building a healthy lifestyle. Support may be needed with work, education, housing, social relationships, and legal issues. Social workers, community-based rehabilitation programs, and follow-up centers play key roles. Early detection and intervention for relapse increase long-term success.

1.4. Next-Generation Treatments: Subcutaneous Implant Therapies

In recent years, subcutaneous implant applications have drawn attention as alternatives for alcohol and opioid use disorders in Turkey. Particularly in opioid treatment, this method is increasingly used because it simplifies medication delivery and helps prevent relapse.

Subcutaneous implants are small, slow-release medication rods placed under local anesthesia usually on the inner upper arm or abdominal area. They release a steady dose of medication over weeks to months. The most commonly used drug is naltrexone.

1.4.1. Naltrexone

Significant innovations have emerged in how medications are delivered. Naltrexone subcutaneous implants have become more widespread recently. Especially for opioid use disorder, implants provide long-term, steady dosing, improving adherence and helping prevent relapse.

Once placed, naltrexone is released continuously, blocking the expected opioid “effect,” thereby creating a deterrent barrier against use.

- Because implants eliminate the need for daily dosing, they are advantageous for individuals with poor adherence or high relapse risk. They also make “breaking” treatment (discontinuing medication) more difficult.
- Naltrexone implants are generally placed after detox, once the person is fully opioid-free; otherwise, acute withdrawal can be precipitated at implantation.

1.4.2. What Are Naltrexone Implants?

Naltrexone blocks opioid receptors in the brain, neutralizing the effects of opioids (heroin, morphine, codeine, oxycodone, methadone, etc.). Thus, even if use occurs, the expected “high” is not felt deterring reuse and gradually reducing craving.

Implants are sterile pellets containing naltrexone, placed subcutaneously (often in the abdominal area) under local anesthesia. They typically provide slow, steady release for 2–6 months (most often 10–12 weeks), ensuring continuous protection without daily dosing.

The pellets are small cylindrical rods composed of biocompatible and generally biodegradable carrier materials designed for controlled, long-acting release. Common polymers include PLA (polylactic acid), PLGA (polylactic-co-glycolic acid), and PCL (polycaprolactone) inert materials long used safely in implants. They do not provoke immune reactions; infection risk is low, and simple wound care is usually sufficient. Upon contact with body fluids, they gradually break down

and are metabolized, eliminating the need for surgical removal improving comfort and avoiding additional procedures.

Pellets are engineered so some drug is near the surface and some dispersed within the polymer matrix. After implantation, surface drug releases first, then continued diffusion/degradation maintains long-term delivery supporting stable plasma levels for weeks to months. Release rate can be tuned by polymer type, pellet size, manufacturing method, and dose. Naltrexone implants commonly contain ~1000 mg of active drug and act for 10–12 weeks. This technology enhances treatment continuity, simplifies dosing, and helps prevent relapse particularly in opioid use disorder.

Compared with oral tablets, pellets offer key clinical advantages: they prevent sharp peaks/troughs in blood levels, maintain a stable therapeutic effect, remove the need for daily dosing (crucial for low-adherence patients), and build a protective barrier against relapse. They also simplify follow-up when frequent clinic visits are difficult, making care more practical and sustainable.

1.4.3. Mechanism of Action of Naltrexone Implants

Naltrexone binds strongly to opioid receptors in the brain and nervous system. Opioids normally bind these receptors to produce pleasure and reward. By occupying the receptors, naltrexone prevents opioids from binding; thus, even if a person uses, the drugs cannot exert their effects.

Because these receptors sit at the core of the reward circuitry implicated in addictive behavior, implants interrupt the “reward” loop and progressively reduce craving, allowing patients to focus more effectively on psychological and behavioral rehabilitation.

1.4.4. Implantation Procedure

Placement is a brief minor procedure under local anesthesia, typically in the abdominal area, lasting about 15–20 minutes. A small incision is made, sterile naltrexone pellets are inserted subcutaneously, and the incision is closed and dressed. Wound care for a few days is recommended; sutures are usually removed within a week. Owing to biodegradability, removal is not required.

1.4.5. Advantages of Naltrexone Implants

Provides continuous medication effect for 2–3 months, offering sustained protection. Eliminates daily pills, improving adherence and preventing missed doses or self-discontinuation. Continuous receptor blockade reduces the expected effects of use, lowering relapse risk and weakening urges. Eases clinical monitoring; treatment continues without the need to supervise daily dosing. Because efficacy persists unless the implant is removed, treatment continuity is supported.

1.4.6. Limitations and Precautions

Full detoxification must precede implantation; otherwise, severe precipitated withdrawal may occur. Implants are not a stand-alone cure; best outcomes come when combined with psychosocial support, therapy, and structured follow-up. Suitability varies by individual; the decision requires medical evaluation. While used in some private centers in Turkey, regulatory status varies by country; for example, in England it is not yet a licensed treatment option.

CONCLUSION

Subcutaneous naltrexone implants stand out as a long-acting, innovative option in addiction treatment especially for opioid use disorder by reducing relapse, improving adherence, and providing protective effects. However, they are not a miracle solution on their own; the most effective results arise from a comprehensive approach that combines medication, psychosocial support, and social rehabilitation.

Chapter 11

Author: Ezgi BOLAT, Mol. Bio.

WHAT ARE THE SIGNS OF ADDICTION?

What may begin as “curiosity” or “just to try” can gradually turn into a loss of control. People with addiction can no longer relax without the substance (drugs, cigarettes, alcohol, medications, etc.) or behavior (gambling, internet, social media, etc.). Family members can often notice early warning signs by observing changes in a child’s or loved one’s attitudes, emotional responses, and social relationships. At its core, addiction involves the brain’s reward system. Substances or behaviors that increase dopamine release produce short-term pleasure; over time, that pleasure diminishes, and larger amounts are needed to achieve the same effect. If not recognized early and addressed, addictions negatively affect a person’s biological, psychological, and social well-being.

1. Stages of Substance Addiction

1.1. Experimentation: Often begins out of curiosity, peer influence, or the idea of “trying it once won’t hurt.” At this stage, families can notice small behavioral changes and help the person receive early treatment and return to normal life.

1.2. Regular Use: Use continues at certain intervals. The person adopts the substance as a method of coping with stress.

1.3. Misuse: Use now affects daily life negatively. The person continues despite knowing the harms.

1.4. Addiction: Without the substance, the person does not feel “normal.” Withdrawal symptoms (sweating, tremors, nausea) emerge. Families often recognize serious problems at this stage.

1.5. Relapse (Return to Use): Even after treatment, some people may return to use due to stress or environmental factors. This shows addiction requires long-term effort. Relapse should be seen not as failure but as a learning opportunity family support is crucial here.

2. Signs of Substance Use

The effects of substance use vary by person, and there is no infallible way to identify use from the outside. Especially in adolescence, many behavioral changes can occur, so care must be taken not to confuse typical developmental changes with substance use.

2.1. Psychological Signs

Strong urge to use

Anxiety, depression, or sudden mood swings

Loss of motivation, apathy

Hallucinations, paranoia

Difficulty concentrating and making decisions

Forgetfulness

Emotional lability (shifting from anger or aggression to cheerfulness or calm)

2.2. Behavioral Signs

Intense efforts to obtain the substance

Lying, hiding, avoiding responsibilities

Decline in school or work performance

Increase in risky behaviors (accidents, tendency toward crime)

Disrupted daily routine; changes in sleep patterns

Theft

Abnormally increased spending

2.3. Physical and Biological Signs

Red eyes, dilated pupils

Sudden weight loss

Vomiting

Disordered eating (loss of appetite)

Fatigue, weakness

Convulsive seizures not due to epilepsy

Sleep disturbances (insomnia or hypersomnia)

Balance and coordination problems

Elevated blood pressure, sweating, palpitations, tremors

2.4. Social Relationships

Withdrawal from family and friends

Persistent desire to be alone

Aggressiveness in communication or social withdrawal

Tendency toward criminal behavior

Poor fit in social settings

Change in peer group

Abandoning former habits and hobbies

3. Signs of Alcohol Addiction

Alcohol addiction is characterized by an inability to control alcohol use and the emergence of physical withdrawal symptoms when drinking is stopped. Sleep disturbances, irritability, memory problems, and loss of functioning are common.

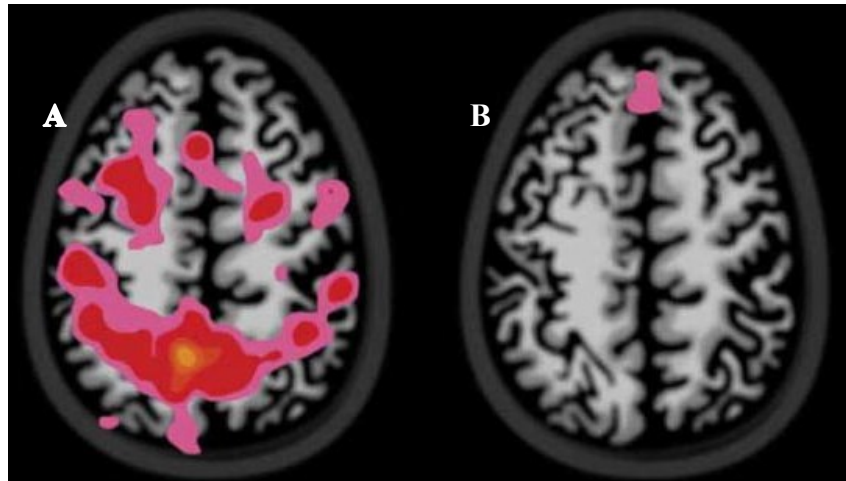


Figure 1. A – B (MRI comparison): In Figure A, an MRI of a 15-year-old who has never consumed alcohol is shown. In Figure B, an MRI of a 15-year-old with heavy alcohol consumption is presented for comparison. Colored regions indicate active areas. During this test, activity in memory-related regions was marked and compared.

4. Signs of Tobacco (Nicotine) Addiction

Nicotine is among the most highly addictive substances. When a person does not smoke, they may feel restlessness, difficulty concentrating, and headaches. Long-term use significantly raises the risk of heart, lung, and vascular diseases.

5. Signs of Gambling Addiction

Gambling addiction is characterized by continued play despite financial losses, increasing debts, and escalating concealment behaviors. Such addictions harm not only a person's finances but also their emotional and social life.

6. Signs of Internet and Gaming Addiction

Among the most common addictions in the digital age. The person spends prolonged periods online and neglects social relationships and academic responsibilities. Especially in adolescents, insomnia, attention problems, and social withdrawal are frequently observed.

All forms of addiction are treatable, but success depends greatly on family support. Families should be patient, understanding, and informed; keep communication open; and focus on solutions rather than blame.

CONCLUSION

Addiction is not merely turning to a substance or behavior; it is a process of physical, psychological, and social decline. What starts with curiosity, stress-coping, or environmental influences can become a habit that governs one's life. By acting on the brain's dopamine system, addiction fosters short-term pleasure seeking while deepening the long-term cycle of dependence weakening free will and seriously lowering quality of life.

Every phase of addiction from experimentation to relapse can be prevented if recognized early. Awareness by family and close contacts is critical. Careful attention to behavioral, psychological, and physical changes can facilitate professional help. Especially for adolescents, distinguishing addiction signs from ordinary developmental changes is essential. This awareness can halt progression and help a person regain direction.

Remember: addiction is not a weakness of will but a disease that requires treatment. Rather than punishment, exclusion, or judgment, the approach should be understanding, patience, and support. When families keep communication channels open and take an active role in professional care, treatment success rises substantially. At the same time, education, public awareness campaigns, and preventive policies strengthen society's overall response.

In short, no matter how complex addiction seems, with early recognition, family support, and expert intervention, it can be brought fully under control. A return to a productive, healthy, and balanced life is possible. Broad societal awareness benefits not only individuals but also the mental health of the entire community.

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Chapter 12

Author: Ayse Nur AKMEHMET, PhD

SUBSTANCE ADDICTION WORLDWIDE

Substance addiction is a borderless global public health problem that deeply affects not only individuals' physical and mental health but also social structures, economies, and public safety. Defined by the World Health Organization (WHO) as a disease, it is characterized by the uncontrolled and harmful use of psychoactive substances. On a global scale, despite geographical, socioeconomic, and cultural differences, common threats are evident.

Annual reports published by the United Nations Office on Drugs and Crime (UNODC) reveal the global prevalence of substance use. Data from the World Drug Report (2025) show an upward trend in both the prevalence and variety of substance use. Over the last decade, the number of people who use drugs has increased by more than 20%. As of 2025, approximately 292 million people aged 15–64, 5.8% of the global adult population used an illicit substance at least once in the past year. This rise is attributable not only to population growth but also to the global expansion of drug supply and accessibility.

1. Usage Trends and Demographic Distribution

The most widely used drug worldwide is cannabis, with an estimated 228 million users. In countries where cannabis has been legalized (e.g., Canada and certain U.S. states), usage rates have risen markedly. Meanwhile, the production and consumption volumes of amphetamine-type stimulants (ATS), cocaine, and opioids have reached historic highs.

By gender and age, men constitute the majority of users, but use among women and youth is rising. The 15–24 age group stands out as the highest-risk period for initiating substance use, due to developmental and psychosocial vulnerabilities.

2. Substance Use Disorder and Health Effects

Globally, about 39.5 million people (13.5% of all users) need treatment for substance use disorder, yet fewer than 20% can access services. Most drug-related deaths and severe health losses are associated with opioids. In particular, synthetic opioids (e.g., fentanyl and analogues) are the leading cause of overdose deaths in many regions, especially North America, pushing the “opioid crisis” to the center of the global public health agenda. In addition, people who inject drugs (PWID) are estimated at 13.2 million worldwide; this group faces the highest risk of blood-borne infections such as HIV, HBV, and HCV.

3. Regional Differences and Global Trends

The prevalence of substance use varies significantly by region:

A) North America: The epicenter of the synthetic opioid crisis. Prevalence ranges around 15–20%, with the majority of overdose deaths recorded here.

B) Oceania (Australia & New Zealand): High use of methamphetamine and cannabis, with prevalence around 10–15%.

C) Western & Central Europe: 6–10%; cannabis, cocaine, and synthetic stimulants are prominent.

D) East & Southeast Asia: 3–5% overall, but production of methamphetamine and synthetic opioids is rising rapidly.

E) Africa: 4–6%; cannabis remains the most common drug, while the misuse of prescription opioids (e.g., tramadol) has become a major public health concern.

F) Global average: Approximately 5.8%.

This distribution shows that addiction is not only an individual issue but also exhibits geographical and economic concentration. In high-income regions, easier access to prescription medications correlates with higher dependence, while in low- and middle-income countries, socioeconomic stressors such as poverty, unemployment, and migration fuel substance use. In densely populated

regions like Asia and Africa, individual prevalence may be relatively lower, yet the absolute number of users constitutes a significant share of the global burden.

4. Substance Addiction in Turkey

Due to its geography, Turkey occupies a unique and complex position regarding substance addiction and drug trafficking. Serving as a bridge between Europe and Asia places the country on major transit routes, while regional instabilities and demographic shifts influence domestic demand. Consequently, addiction in Turkey is a multidimensional public health and security issue arising from the intersection of national and international socioeconomic factors. Despite this challenging landscape, reliable data indicate that the lifetime prevalence of drug use in the general population is lower than global and European averages. However, the nature of the problem and the profile of substances used are undergoing a dramatic shift.

5. Critical Shift in the Addiction Profile and Demographics

Reliable data in Turkey are typically compiled by the Turkish Monitoring Centre for Drugs and Drug Addiction (TUBİM) and the General Directorate of Security. In line with global trends, cannabis remains the most commonly used drug in Turkey, yet treatment admissions and judicial case data in recent years highlight a striking rise in synthetic cannabinoids (K2/Spice) and methamphetamine. Because these substances are cheaper and more easily obtained, they have spread rapidly among young populations.

There has been a historic shift in the primary substances reported by patients entering treatment: whereas heroin traditionally dominated, in recent years synthetic cannabinoids and methamphetamine have risen to the top. Clear evidence that the addiction profile in Turkey has pivoted toward synthetic drugs. As a culmination of this shift, methamphetamine has reached first place among admissions to treatment centers (AMATEM/ÇEMATEM); according to some reports, 37% of treatment applications are methamphetamine-related, and the number of people seeking treatment for methamphetamine has exceeded 130,000. In parallel, heroin-related admissions have declined.

In Turkey, addiction is concentrated among young adults and youth. The age of initiation is falling especially due to the easy availability of synthetic substances placing the 15–24 group at particular

risk. By gender, men still account for the majority of diagnoses and treatment admissions, but use among women is also increasing.

According to TUBİM 2024 data, drug-related deaths rose by 22% compared with 2022. Roughly half (or a substantial proportion) of these deaths are associated with methamphetamine. Poly-substance involvement accounts for 61.6% of deaths. The average age of drug-related deaths is about 35, and 92% of the deceased are male.

6. National Response and Preventive Policies

Turkey combats addiction through an integrated approach that aligns security, health, and social policies across three main pillars:

A. Supply Reduction: Strengthened border security, international cooperation, and operations against organized crime.

B. Demand Reduction: Expansion and capacity-building of AMATEM (Alcohol and Substance Addiction Treatment and Training Centers) and ÇEMATEM (Child and Adolescent Substance Addiction Treatment Centers).

C. Preventive Programs: Awareness and prevention initiatives targeting at-risk groups in schools and communities.

Although Turkey maintains low general-population prevalence, it faces a rapidly evolving addiction landscape driven by synthetic drugs (especially methamphetamine). Methamphetamine's surge to the top of treatment admissions and the rise in drug-related deaths underscore the severity of the threat. Accordingly, sustaining the fight against addiction in Turkey requires not only supply control but also national policies that keep pace with the shifting profile focusing on youth and disadvantaged groups and integrating health and security dimensions. The coordinated work of TUBİM and the General Directorate of Security, the primary data-collecting institutions, is vital to preserving gains and responding effectively to new threats.

CONCLUSION

Globally, substance addiction remains a multifaceted challenge that threatens social structures, economies, and health systems. The rapid spread of synthetic drugs in recent years, shifting legal

frameworks, and the ease of drug procurement via digital platforms have further complicated the problem. UNODC data make it clear that both developed and developing countries must strengthen addiction policies. Within this framework, prevention, early intervention, treatment, and rehabilitation must be addressed comprehensively as an essential condition for the sustainability of global public health.

Chapter 13

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TYPES OF ADDICTION

When people think about addiction, they often picture a substance being ingested by mouth, inhaled through the nose, or injected into a vein. The fact that the earliest recognized forms of addiction were drugs and alcohol is one reason for this association. As a result, addiction has long been equated with the use of a tangible, consumable thing. In 2013 and 2024, however, it was acknowledged that the concept of addiction is not limited to drugs or alcohol alone (1). A discussion emerged around the idea that addictive agents are not only things that are eaten, drunk, or otherwise taken into the body. The American Psychiatric Association (APA) noted in the 5th edition of the Diagnostic and Statistical Manual of Mental Disorders (DSM-5) that “addictive disorders” are not confined solely to psychoactive substances (DSM-5, 2022). With the publication of the 11th edition of the World Health Organization’s International Classification of Diseases (ICD-11) in 2024, the scope of “addictive disorder” was further broadened. With these expansions in DSM-5 and ICD-11, addiction is discussed under two headings: psychoactive substance addiction and behavioral addiction. In psychoactive substance addiction, the person is dependent on a chemical; in behavioral addiction, the person is dependent on a behavior (2).

1. Psychoactive Substance Addiction

Psychoactive substances are naturally occurring or synthetic agents that affect the brain and cause changes in thinking, awareness, behavior, and mood. Some prescription medications used for medical treatment also fall into this category because they can affect the brain and alter cognition, awareness, behavior, and mood. Psychoactive substances include alcohol, methamphetamine, morphine, cannabis, heroin, cocaine, poppy/opium, and hemp (3). Synthetic versions of these substances are also produced; these artificial drugs often called synthetic drugs include, for example, bonzai (synthetic cannabinoids). Because psychoactive substances act on the central nervous system, they can produce adverse changes in perception, sensation, behavior, consciousness, and mood. Although diagnoses have traditionally been associated with the

consumption of non-food substances due to their psychoactive properties, such substances disrupt normal brain function (4). Psychoactive substances can alter brain function even with first use.

According to the Republic of Turkey Ministry of Health's Handbook of Diagnostic and Treatment Guidelines for Substance Addiction (5), the diagnostic criteria for psychoactive substance addiction include:

- (a) A strong desire to use the substance or frequently thinking about it
- (b) Difficulty controlling substance-taking behavior
- (c) Physiological withdrawal syndrome when use is reduced or stopped
- (d) Development of tolerance, leading to the need for higher doses to achieve the same effect
- (e) Spending more time obtaining, using, or recovering from the effects of the substance than on other daily pursuits
- (f) Continuing to use despite serious health problems (e.g., liver disease, depressive mood disorders)

A diagnosis of substance addiction is made when three or more of the above criteria are present.

Treatment for psychoactive substance addiction typically involves multiple stages (6). Rather than stopping abruptly, withdrawal symptoms are managed by tapering and using adjunctive medications. In treatment for heavy use of heroin or other opiate-based substances, less harmful psychoactive medications may be used as part of care. Treatment is difficult, prolonged, and costly, and the individual should be supported toward recovery without social exclusion.

2. Behavioral Addictions and Their Types

Psychiatrists began discussing behavioral addiction in the 1990s. As modern life has become intertwined with technology, new forms of addiction have been identified. The idea that addiction can also be behavioral was first proposed by Isaac Marks in 1990. In modern life, addiction may arise not only from a psychoactive substance but also from the relief and pleasure generated by certain behaviors (7). When behaviors become habits and those habits become uncontrollable over

time persisting despite adverse consequences the pattern constitutes addiction (8, 9). This is referred to as behavioral addiction.

Behavioral addictions include internet addiction, gambling addiction, video-game addiction, shopping addiction, technology addiction, eating addiction, social media addiction, and compulsive sexual behavior (10). They are influenced by biological factors such as genetic predispositions, psychological factors such as personality traits, and social factors such as family and community environment (11). As of 2022, an “other specified/unspecified disorders” category has been recognized under behavioral addictions. Now a technology-driven public health issue, social media addiction has been shown like psychoactive substance and behavioral addictions to affect the brain and cause physical and psychological problems.

Behavioral addictions resemble psychoactive substance addiction in several ways: they often begin in adolescence and young adulthood; the brain exhibits warning signals before the act; and the act itself provides pleasure and relief (12). On this basis, Goodman (1990) proposed diagnostic criteria for behavioral addictions derived from DSM-III-R’s substance dependence criteria (13):

- (A)** Repeated failure to resist impulses to perform a specific behavior
- (B)** Increasing tension immediately before performing the behavior
- (C)** Pleasure or relief while performing the behavior
- (D)** Loss of control during the behavior
- (E)** At least five of the following:
 1. Frequent preoccupation with the behavior or with preparing to perform it
 2. Performing the behavior more often or for longer than intended
 3. Persistent efforts to reduce, control, or stop the behavior
 4. Excessive time spent engaging in the behavior or recovering from its effects
 5. Engaging in the behavior during times when work, school, home, or social duties should be performed

6. Abandoning or reducing educational, recreational, or social activities because of the behavior
7. Continuing despite persistent/recurrent psychological, physiological, economic, or social problems caused by the behavior
8. Developing tolerance (self-permission/leniency to escalate)
9. Irritability or restlessness when unable to perform the behavior

(F) At least five symptoms have been present for at least one month, or have recurred over a longer period.

Six core components commonly observed in behavioral addictions have been described (14):

Salience: The behavior becomes the most important activity in the person's life and dominates thinking.

Mood modification: The behavior is used as a form of psychological escape or pleasurable arousal.

Tolerance: The behavior is performed more frequently/for longer to achieve the same mood changes, and goes unquestioned.

Withdrawal: Physical and psychological symptoms (e.g., tension, irritability, pessimism) when the behavior is reduced or stopped.

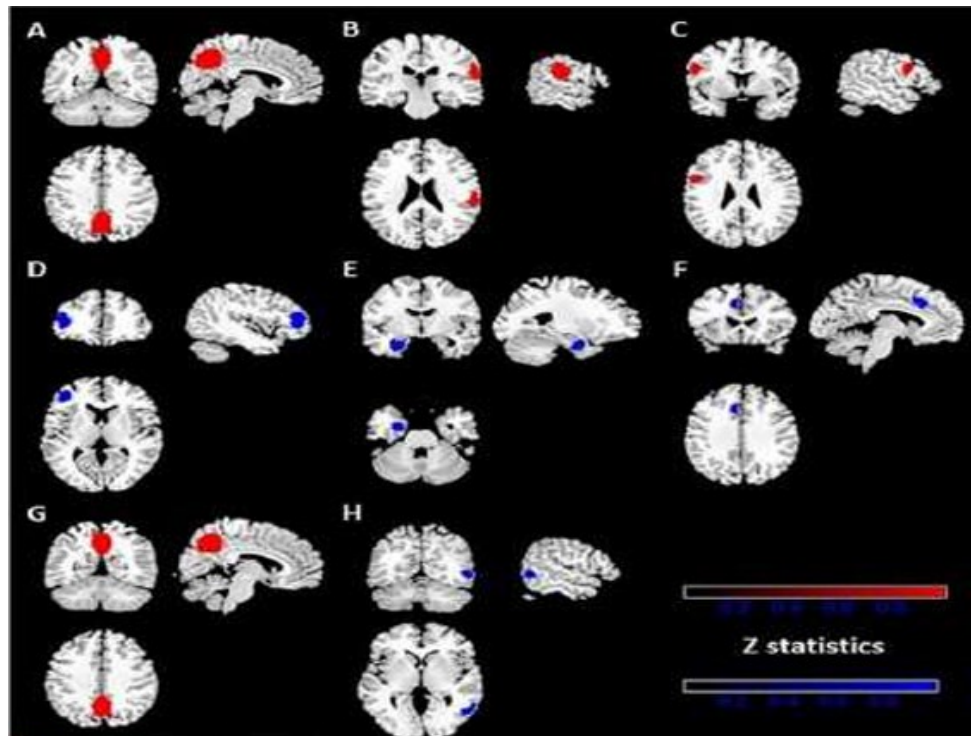
Conflict: Interpersonal conflicts and social withdrawal from family, friends, or colleagues.

Relapse: A tendency to revert to previous patterns after a period of abstinence.

In work on diagnosing internet gaming disorder, brain-imaging methods have been used to identify neurological correlates (15). In a 2024 study (16), MRI scans of a male patient with internet gaming disorder were obtained (*Figure 1*). Red-marked areas in brain slices A, B, and C showed hyperactivation attributable to online gaming. In other words, these slices were intensely activated

by gaming and remained stimulated for a prolonged period. In slices D and F, blue-marked regions indicated the onset of pathology.

Figure 1. MRI image of a male patient with internet gaming disorder (16).



In conclusion, addiction should not be considered in isolation. Family structure, parental communication methods, and parenting styles are critical environmental factors. Bruce K. Alexander's "Rat Park" experiments clearly demonstrated the impact of environmental and social conditions on addiction. For example, when perfectionistic parents set excessively high expectations for all of a child's activities, the child's fear of making mistakes increases (14). Evaluating perfectionism suggesting over-involvement alongside parental indifference as role-model behaviors reveals unhealthy or absent communication. Such patterns create unrest in family and community life and can push children and youth toward depression. They similarly affect relationships with the broader social environment. Family conflict, problems, weak bonds, and inadequate social support are important risk factors for substance use. Individuals may turn to substances or behaviors to avoid exclusion from their peer group. Especially for protecting children and adolescents from the drug trap, practical communication models are needed. Communication mutual expression of feelings, thoughts, concerns, and joys is an indispensable requirement that fosters understanding.

Within state policy, awareness should be raised regarding social media use. Public service announcements that promote informed, beneficial uses of social media especially on new media tools and apps frequently used by youth should be disseminated.

Directions for Future Research

In line with the suggestions of Liao et al. (4), future studies should prioritize:

1. Empirical research on the physical and psychological consequences of social media addiction
2. Coping strategies of individuals with social media addiction and their families
3. Development of effective treatments analogous to those for psychoactive substance addiction
4. Psychiatrists' attitudes toward social media-addicted patients and their communication with them
5. Techniques used by platform producers that increase social media addiction
6. Protective measures implemented by governments regarding social media addiction
7. Budgeting for social media addiction within health expenditures

CONCLUSION

Addiction is not a phenomenon explainable solely by willpower; it is a complex disease arising from the interplay of biological, psychological, social, and environmental factors. Today, the concept of addiction encompasses not only psychoactive substance use but also behavioral addictions such as technology, internet, gaming, shopping, and social media. The most recent classifications by the WHO (ICD-11) and the APA (DSM-5) clearly show that addiction is no longer merely “substance-based”; the social and digital lifestyles of the modern era also lay the groundwork for addiction.

Psychoactive substance addiction captures the body and mind by disrupting the brain's chemical balance; behavioral addictions similarly generate a cycle of addiction by undermining self-control,

fueling pleasure-seeking, and harming social relationships. In both types, the brain's reward system is engaged: short-term relief is pursued at the expense of long-term harm.

Family and societal dynamics play a decisive role in the development of addiction. Intra-family communication problems, overly controlling or indifferent parenting, low social support, and environmental risk factors can channel individuals toward substances or behavioral addictions. As shown in Rat Park, the quality of environmental conditions directly affects addiction vulnerability. Therefore, combating addiction requires attention not only to the individual but also to their social environment and living conditions.

Today, digital addictions are rising rapidly, especially among youth. Social media, online gaming, and technology use trigger dopamine-based reward loops, becoming the invisible addictions of our time. For this reason, it is vital for governments, platforms, and educational institutions to collaborate on awareness policies. Public service announcements, media literacy programs, and digital balance initiatives can have a protective effect at the population level.

Ultimately, addiction is a multifaceted public health issue that demands collective responsibility. Effective action requires the coordinated pursuit of prevention, awareness, early detection, treatment, and rehabilitation. Family education, proper guidance for youth, active involvement of civil society, and sustained, evidence-based public policy is indispensable to success.

The essential truth to remember in the fight against addiction is this: Recovery is possible so long as the individual is not left alone. Every step taken with a human-centered, science-based, and social-solidarity mindset brings a new ray of hope in combating addiction.

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Chapter 14

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RESPONSIBILITIES OF PARENTS AND THE FAMILY IN ADDRESSING SUBSTANCE ADDICTION

In combating substance addiction, the roles of parents and the broader family are vital both for prevention and for supporting treatment. The family is the first environment in which a child's character, habits, and values are shaped. For this reason, the most effective force in preventing and treating addiction is an informed and supportive family structure.

First and foremost, family members need to obtain accurate and reliable information about substance addiction. Being aware of what addiction is, how it begins, which substances pose risks, and what the early warning signs are makes early intervention possible. When sudden changes are noticed in a child's behavior, peer group, or school performance, the underlying causes should be explored without judgment.

When parents learn that their child has begun using substances, they often experience shock and uncertainty about how to respond. This can lead to impulsive reactions and a loss of control. What matters here is to notice the situation calmly and try to maintain emotional balance so as not to take missteps. This is crucial for establishing open and healthy communication within the family.

Good communication starts with good listening. Parents should listen without judgment, try to understand their child's feelings, praise positive behaviors, and make the child feel supported under all circumstances. Such communication strengthens the child's sense of trust and helps them avoid risky behaviors. Alongside affection, consistency within the family is also important. An environment where boundaries are clear and understanding prevails not pressure provides a safe framework for the child.

Parents must also be role models. Avoiding cigarettes, alcohol, and other harmful habits in their own lives sends a powerful message. A healthy lifestyle should be taught not only through words but through behavior. Parents should frequently express that they trust their children and stand by

them. Guiding children to make constructive use of their free time is also protective. Participation in sports, the arts, volunteering, or social activities increases self-confidence and strengthens a sense of belonging.

If someone in the family uses substances, avoid accusatory, judgmental, or critical attitudes toward them. The right approach is not to blame, but to support.

Addiction is not a weakness of will; it is an illness that requires treatment. Therefore, the family should seek professional help and take an active role in the treatment process. Family support is one of the most important and decisive factors in helping a person with a substance use disorder reintegrate into society after treatment.

Treatment can be lengthy and challenging; patience, empathy, and understanding are essential throughout. A positive family attitude increases the person's motivation to recover. Family members must also protect their own emotional balance.

Persistent guilt, anger, or helplessness exhausts both the individual and the family. Families can gain knowledge and moral support by joining support groups offered by organizations such as The Turkish Green Crescent (Yeşilay) and AMATEM.

In addition, the family has not only an individual but also a social responsibility. They should closely monitor their children's peer groups, school environment, and the influences of social media; and they should cooperate with school administrations, counseling services, and the wider community. Participating in public awareness projects helps create a climate of consciousness that protects both children and society.

CONCLUSION

The most effective and lasting solution in the fight against substance addiction is a family-based approach of awareness and support. The family is the individual's first social environment and the foundation of personality development. Therefore, parents' level of knowledge, communication style, and attitudes play a decisive role in both preventing addiction and ensuring success during treatment. An informed, loving, yet consistent and determined family structure is the strongest protective factor that keeps children away from risky behaviors.

In the struggle against addiction, the family's first duty is to become informed; the second is to provide support with understanding and patience. When family members know what substance addiction is, how it develops, and the signs by which it manifests, early intervention becomes possible. Early warning signs especially in children such as behavioral changes, declining school performance, or deterioration in social relationships should be assessed carefully. A nonjudgmental, understanding stance helps the child trust their family.

Parents' responsibility to be role models should not be forgotten. Parents who avoid cigarettes, alcohol, and similar harmful habits and who maintain a healthy lifestyle send a message more powerful than words. In family communication, setting boundaries and being consistent are as important as showing affection. Overly authoritarian or indifferent attitudes can lead to rebellion or withdrawal; instead, an understanding atmosphere with clear boundaries reinforces a sense of security.

If substance use has begun, family members should choose support over blame or punishment. Addiction is not a "moral failing," but a chronic illness that requires treatment. Therefore, it is crucial for families to seek professional help, collaborate with institutions such as AMATEM and The Turkish Green Crescent (Yeşilay), and actively participate in the treatment process. A patient, empathetic, and encouraging family attitude is the strongest source of motivation in the individual's recovery.

At the same time, it is vital for family members to protect their own emotional health. Persistent anger, guilt, or helplessness harms both the individual with addiction and the family dynamic. For this reason, families should join support groups, seek psychological counseling, and take part in community awareness initiatives.

In conclusion, in the fight against substance addiction the family is both the first line of defense and the final refuge. Parents' informed, patient, and determined attitudes not only protect their children but also strengthen the community's overall mental health. It must be remembered that combating addiction is a shared responsibility of the individual, the family, society, and the state. Strong families are the foundation of strong societies and strong societies are the surest fortress against addiction.

INSTITUTIONAL RESPONSIBILITIES AND POLICY RECOMMENDATIONS IN COMBATING SUBSTANCE ADDICTION

Policy Brief - For Submission to Ministers

Executive Summary

Substance addiction is a multisectoral issue that requires a holistic approach across health, security, education, and social cohesion. Success depends on an unbroken chain of prevention, early intervention, treatment, rehabilitation, and social reintegration—along with interagency coordination and transparent monitoring and evaluation. This brief presents practical steps outlining the roles and responsibilities of the Ministries of Family and Social Services, Religious Affairs, National Education, Justice, Industry and Technology, and Health.

Principles and Fundamentals

Dignity-centered approach: Rights-based, inclusive, science-based policy in place of stigmatization.

- 1 **Family focus:** Strengthening the family in prevention and rehabilitation.
- 2 **Evidence-based practice:** Standard protocols, monitoring, and evaluation.
- 3 **Coordination:** A permanent inter-ministerial coordination structure and a shared data infrastructure.

1) MINISTRY OF FAMILY AND SOCIAL SERVICES

Goal:

Reduce risk by strengthening families; provide holistic social support to at-risk individuals and households.

Priorities

Parental Capacity

- Nationwide modular Parent Education Program (communication, boundary-setting, early warning signs, digital balance).
- Broad family counseling services and short, intensive programs for families in crisis.

Children and Youth at Risk

- Rehabilitation-oriented models for children living on the streets or outside the system; addiction-awareness modules in Youth Centers.
- Increased deployment of field social workers in high-risk neighborhoods.

Support for People with Addiction and Their Families

- Support packages aligned with treatment (financial aid, psychosocial and counseling services, and caregiving-burden support).
- Neighborhood-level, community-based projects informed by social risk maps; cooperation protocols with civil society and local governments.
- Role-model programs featuring peer testimonies from recovered individuals.

Contribution to Rehabilitation

- Post-treatment life-skills training, employment bridges, and temporary housing options.

2) PRESIDENCY OF RELIGIOUS AFFAIRS (DİYANET)

Goal:

Strengthen spiritual support, awareness, and social solidarity.

Priorities

Awareness

- Khutbah / Sermon and preaching content that avoids accusatory language and emphasizes hope and recovery.
- Programs for youth outside mosque settings (youth meetups, workshops).

Family Support

- Parent seminars in mosques and Qur'an courses; mother-focused sessions delivered by women preachers.
- Content themed around intra-family communication, patience, empathy, and guidance.

Spiritual Guidance

- Spiritual counseling in AMATEM/rehabilitation institutions and prisons; a nonjudgmental, empowering approach.
- Spiritual Counseling Points and joint teams with social workers.
- Narratives from the Islamic tradition that highlight repentance and new beginnings to support holding on to life.

Training

- In-service training for religious officials on addiction awareness and referral; joint programs with social workers.

3) MINISTRY OF NATIONAL EDUCATION

Goal:

Prevent use before it starts; establish an early warning–referral–protection chain within the school ecosystem.

Priorities

Curriculum and Values Education

- Integrate age-appropriate content on addiction, healthy living, coping with stress, and digital balance.
- Strengthen themes of self-control, self-esteem, and responsibility.

Psychosocial Support

- Expand the capacity of guidance/counseling services; implement protocols for early detection–family collaboration–referral.
- Establish psychosocial support units in large schools.

Safe School Environment

- Intensive inspections coordinated with the Ministry of Interior; prevent the use of derelict/abandoned buildings.
- Zero tolerance for tobacco and alcohol on and around school grounds.

Teacher Training and Family Engagement

- Awareness seminars for all teachers.
- An annual Parent Seminar at every school; cultural and sports activities in cooperation with NGOs and municipalities.

Alternative Activities

- Clubs, volunteering, arts and sports events; awareness competitions for short films/posters/theater.

4) MINISTRY OF JUSTICE

Goal:

Prevent crime while reintegrating individuals into society; prioritize rehabilitation over punishment.

Priorities

Effective and Fair Investigation

- Swift, coordinated investigations targeting supply chains and organized crime.
- A clear distinction between users and dealers; treatment–rehabilitation priority for users.

Rehabilitation in Prisons

- Treatment and psychosocial programs for detainees/convicts with addiction; health and employment bridges prior to release.
- Training for members of the judiciary and correctional staff on addiction and crisis management.

Alternative Sanctions

- Regular therapy, counseling, and compliance programs under probation.
- Community service to strengthen a sense of responsibility.

Children and Youth

- Protection- and education-focused centers instead of punishment; specialized units akin to youth courts.
- Integration of parent education programs with the juvenile justice system.

Legislative Support

- Clear legal bases that strengthen referral to and participation in treatment.

5) MINISTRY OF INDUSTRY AND TECHNOLOGY

Goal:

Technology-based solutions against digital addictions; integrating rehabilitated individuals into productive employment.

Priorities

Digital Awareness and Monitoring

- A national platform developed with BTK (Information and Communication Technologies Authority) and TUBITAK (The Scientific and Technological Research Council of Turkey) to track screen time and content-quality indicators, with regular public reporting.
- Promotion of applications that provide parents with early warnings about excessive online behaviors.

Safe Technology Use

- Digital balance trainings for teachers–parents–students; encourage a producer/creator digital culture instead of passive consumption.

Employment and Skills Development

- Vocational training and employment programs in Organized Industrial Zones (OIZs) and techno parks; bridges from public education to technical training.
- Incentives for social-impact ventures.

Safety in Digital Design

- Under BTK coordination, oversight based on transparent criteria of mechanisms that trigger addictive use (e.g., infinite scroll, excessive reward loops).

6) MINISTRY OF HEALTH

Goal:

Strengthen the prevention–treatment–rehabilitation continuum; standardize evidence-based pharmacological and psychosocial treatments.

Priorities

Prevention and Awareness

- Field work focused on youth, students, and high-risk areas; trainings for families on early signs and appropriate interventions.
- Joint health seminars and psychological counseling with the Ministry of National Education (MoNE).

Treatment and Rehabilitation Capacity

- Increase the number and capacity of AMATEM/ÇEMATEM; establish early access/assessment centers.
- Reduce relapse through post-treatment vocational training, psychological support, and follow-up.

Mental Health Integration

- Ensure access to specialist psychologists/psychiatrists in family health centers; provide online counseling options.
- Programs addressing trauma, stress, and emotional resilience.

Medication-Assisted Treatments and Regulation

- Run approval processes for the supervised use of medications with proven scientific efficacy (e.g., naltrexone, etc.).

Strict Oversight Principles

- Use only in authorized centers and under specialist physician supervision.
- e-Prescription and monitoring system with regular patient follow-up.
- Standard dosing and monitoring protocols with inspections.
- Zero tolerance for inappropriate prescribing for commercial/personal gain.

BALANCED RECOMMENDATION *“The Ministry of Health should approve addiction-treatment medications with proven efficacy on the condition of controlled use; implementation must occur only in licensed centers.”* This approach increases treatment success, reduces the risk of counterfeit/illegal drugs, and establishes a safe, standardized national system.

7) MINISTRY OF INTERIOR

Goal:

Reduce supply, detect risks early, raise public awareness, and strengthen interagency coordination; integrate security measures with community-based, sustainable policies.

Priorities

Coordination and Data Management

- A shared data platform under the Ministry's coordination with the Police, Gendarmerie, Coast Guard, Directorate General of Migration Management, BTK, TUBİM, and local governments.
- Regularly updated dynamic geospatial risk maps used in decision-support dashboards.
- Assurance of data standards, privacy, and compliance with the Personal Data Protection Law (KVKK).

Prevention and Early Warning

- Define regular monitoring and early-warning indicators for school zones, entertainment venues, derelict buildings, and digital channels.
- Strengthen local risk-reporting and referral lines with mukhtars and local governments; deploy mobile intake solutions.
- At border gates and ports, conduct targeted controls using advanced analytics, risk scoring, and profiling.

Training and Capacity Building

- Periodic, modular trainings for police, gendarmerie, neighborhood watch (bekçi), and mukhtars (addiction types, early warning signs, crisis de-escalation, referral protocols).
- Practical referral guides for field staff; e-learning and in-service certification programs.
- Enhanced cyber monitoring/OSINT capacity to detect supply channels on digital platforms.

Public Communication and Awareness

- Long-term, measurable awareness campaigns focused on youth and families.
- Dissemination of verified information in cooperation with NGOs and media; counter-misinformation efforts.
- “Safe Neighborhood” meetings and youth gatherings to strengthen local dialogue.

Social Rehabilitation and Reintegration

- The Ministry takes an active role in projects that facilitate access to employment, education, and housing after treatment (bridge mechanisms with municipalities, İŞKUR, and NGOs).
- Scale up and monitor community policing practices.

Enforcement and Oversight

- Rapid, coordinated investigations focused on supply chains and organized crime; proactive monitoring of supply channels on digital platforms/dark web.
- Zero tolerance for tobacco and alcohol on and around school premises; expedited sealing/clearance of derelict buildings (in cooperation with municipalities).

Strict Oversight Principles

- Standard field inspection protocols and human-rights-centered implementation.
- Chain-of-custody integrity, transparency, and accountability.
- Performance indicators: apprehension rate, early-warning response time, number of treatment referrals, recidivism rate.

Impact Analysis and Continuous Improvement

- Regular impact analyses for all activities; data-driven updates of policies and practices.
- Annual public report and inter-provincial comparative dashboards for transparent monitoring.

COORDINATION AND MONITORING–EVALUATION PROPOSAL

National Coordination Board for Combating Addiction:

A permanent body composed of the relevant ministries, the Council of Higher Education (YÖK), local governments, NGOs, and subject-matter experts.

Common Indicator Set:

Metrics such as access to prevention services, early help-seeking rate, treatment engagement and completion, relapse rate, and return-to-employment.

Annual Public Report:

Publication of progress reports to ensure transparency and accountability.

CONCLUSION

When an inclusive, evidence-based, and coordinated approach is adopted, measurable and lasting progress can be achieved in combating addiction. This policy package, centered on human dignity, provides a framework that strengthens families, protects young people, and guides individuals with addiction toward treatment and reintegration without stigma. With strong inter-ministerial coordination, these goals can produce tangible results in a short time.

BE INFORMED, UNDERSTAND, PREVENT, SUPPORT, **GIVE HOPE!**



Addiction is a major public health issue that threatens the well-being, peace of mind, and future of individuals, families, and society.

This book takes a comprehensive look at addiction from biological, psychological, social, economic, legal, and cultural perspectives, presenting scientific data to support understanding and awareness.

By raising awareness, strengthening prevention strategies, and promoting solution-oriented approaches, this work aims to be a valuable resource for professionals, policymakers, and all those committed to the fight against addiction.



*Communities empowered with knowledge
transform through awareness and
flourish through **hope**.*



PSYCHOLOGICAL
DIMENSION



LEGAL
DIMENSION



SOCIAL
DIMENSION



FAMILY
DIMENSION



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DIMENSION



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