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REVIEW ARTICLE ON SELF MEDICATION AS A GLOBAL HEALTH CONCERN-OVERVIEW OF PRACTIES

[1] Ms. Kamthe Priyanka,[2] Mrs. Ingawale Chaitali,[3] Dr. Vijaykumar Kale, [4]Dr. Mahesh Thakare,[5] Mr. Vaibhav Narawade

[1] Student, [2] Assistant Professor, [3]Professor, [4]Associate Professor, [5]Assistant Professor
[1] Pharmacy Student,[2] Department of Pharmaceutics,[3] Department of Pharmacology, [4]Department of Pharmaceutics,[5] Department of Pharmaceutics

Kasturi Shikshan Sanstha College of Pharmacy, Pune, India

Corresponding Author-Ms. Kamthe Priyanka

ABSTRACT.

Self-medication is the practice of individuals selecting and using medicines on their own to treat self-recognized symptoms or minor health conditions without consulting a healthcare professional. This practice has become increasingly common worldwide due to factors such as easy access to over-the-counter (OTC) drugs, prior experience with illnesses, high healthcare costs, and increased availability of online health information. While responsible self-medication can provide benefits such as timely relief, reduced burden on healthcare systems, and enhanced patient autonomy, inappropriate or irrational use poses significant risks. These include incorrect diagnosis, adverse drug reactions, masking of serious diseases, drug interactions, antimicrobial resistance, and potential dependency on certain medications. The prevalence of self-medication is high among students, working adults, and communities with limited access to healthcare services. Frequently used drug categories include analgesics, antipyretics, antacids, antihistamines, herbal preparations, and antibiotics. Strengthening public awareness, enforcing regulations on drug dispensing, promoting rational drug use, and improving pharmacist counseling are essential strategies to ensure the safe and effective practice of self-medication. This review emphasizes the need for balanced self-care practices to minimize risks and enhance community health outcomes.

Keywords:

Self-medication, Over-the-counter (OTC) drugs, Drug misuse, Antibiotic resistance, Public health, Self-care practices, Adverse drug reactions, Rational drug use.

I. INTRODUCTION.

Fig no.1 :- Self Medication Practices

Self-medication is defined by the World Health Organization (WHO) as the selection and use of medicines by individuals to treat self-recognized illnesses or symptoms without professional consultation. It is a common form of self-care across the world and is influenced by cultural, economic, and healthcare system factors. With the growth of over-the-counter (OTC) medications, online drug availability, and increasing health literacy, self-medication has become a global trend.

In many countries, self-medication is practiced for common ailments such as fever, headache, cold, acidity, menstrual pain, and minor infections. However, the practice is often extended to misuse or inappropriate use of antibiotics, steroids, and psychotropic drugs, leading to serious public health concerns. Globally, studies indicate that self-medication prevalence ranges from 40% to over 80% depending on the region. The COVID-19 pandemic further accelerated self-treatment behaviors due to fear of hospital visits and misinformation spread through social media.

While responsible self-medication can reduce healthcare system burden, help manage minor illnesses, and empower patients, unsafe practices can lead to delayed diagnosis, adverse drug reactions (ADRs), drug toxicity, antimicrobial resistance, addiction, and increased morbidity. Pharmacists play a crucial role in promoting rational self-care by educating patients, monitoring drug sales, and ensuring safe OTC use.

Given the growing availability of medicines and the rise of global self-care culture, understanding the patterns and determinants of self-medication is essential. This study aims to analyze self-medication practices, global trends, associated risks, and public health impacts to provide actionable recommendations for improved pharmacy practice and health policy.

OBJECTIVE.

The main objectives of a literature review on self-medication practices are to assess the global prevalence and patterns, identify the reasons and factors (sociodemographic, economic, informational) associated with it, evaluate the associated risks and adverse events, and inform the development of interventions to promote responsible self-medication. Reviews also aim to synthesize findings across different populations and contexts to draw stronger, more comprehensive conclusions.

Key objectives

1. Assess prevalence and patterns: To determine the frequency of self-medication and identify the specific symptoms, types of illnesses, and classes of drugs commonly involved across different populations and regions.

2. Identify contributing factors: To explore the underlying reasons for self-medication, including factors like cost, convenience, perceived mildness of illness, lack of trust in healthcare providers, and influence from media or online information.

3. Evaluate associated risks: To understand the negative consequences of self-medication, such as drug resistance, adverse drug reactions (e.g., hepatic or renal issues), and the wastage of healthcare resources.

4. Examine knowledge, attitudes, and practices: To evaluate the public's understanding of medication and self-care, as well as their attitudes toward the practice and the risks involved.

5. Inform and guide interventions: To provide evidence for public health authorities to design targeted education campaigns and implement strategies to reduce harmful practices and promote safer use of medications.

COMMONLY SELF MEDICATED DRUG.

The most commonly self-medicated drugs are primarily over-the-counter (OTC) medications used for common, minor ailments like pain, fever, coughs, colds, and digestive issues.

The most frequently used categories and specific examples include:

Common Drug Categories

1.Pain relievers (Analgesics) and fever reducers (Antipyretics): This is the most common category globally.

2.Antacids and acid reducers: Used for heartburn, acidity, and indigestion.

3.Cough and cold preparations: Includes cough syrups, decongestants, and expectorants.

4.Antihistamines: Used for allergies and cold symptoms.

5.Antibiotics: While often requiring a prescription, they are widely and inappropriately self-medicated in many regions, which is a significant public health concern due to the risk of antibiotic resistance.

6.Vitamins and supplements: Frequently self-administered for general health or perceived deficiencies.

7.Laxatives and antidiarrheals: For minor gastrointestinal problems.

Specific Medications

1.Paracetamol (Acetaminophen): Consistently reported as one of the single most commonly self-medicated drugs for pain and fever.

2.Ibuprofen: A common Non-Steroidal Anti-Inflammatory Drug (NSAID) used for pain and inflammation.

3.Aspirin and Naproxen: Other widely used pain relievers and NSAIDs.

4.Pantoprazole/Omeprazole/Famotidine: Common proton pump inhibitors and acid reducers for heartburn.

5.Loperamide: An antidiarrheal medication.

6.Cetirizine/Loratadine/Fexofenadine: Common antihistamines.

Common Indications for Use

The main reasons people self-medicate are for conditions perceived as minor, the convenience of avoiding a doctor's appointment, and saving time and money. The most frequent symptoms treated include:

1.Headache

2.Fever

3.Cough and common cold

4.Body pain

5.Acidity or gastric pain

FACTORS ASSOCIATED WITH SELF MEDICATION.

The factors associated with self-medication are a mix of socioeconomic, psychological, and healthcare system-related issues, often differing by region and population group.

Socioeconomic and Demographic Factors

1.Age: The practice is common across age groups, but some studies show higher rates among younger adults (e.g., university students) due to a more active lifestyle or among older individuals due to accumulated experience with illnesses.

2.Gender: Some studies indicate higher rates among females, while others show the opposite; variations may be linked to differences in health-seeking behaviors and access to medical stores.

3.Education Level: Higher education levels, particularly in the medical field, can increase the likelihood of self-medication due to greater perceived knowledge about medications and diseases.

4.Income/Cost: Financial constraints, the high cost of doctor's visits, and expenses for tests or travel can push individuals towards self-medication as a less expensive alternative.

5.Occupation: Busy work schedules and lack of time to visit a physician are common reasons, especially among employed individuals and health professionals themselves.

6.Place of Residence: Urban populations often show higher rates of self-medication, likely due to easier access to pharmacies and busy urban lifestyles.

Healthcare System Factors

1.Access to Healthcare: Delays in obtaining appointments, long waiting times at clinics, and long distances to health facilities are major drivers of self-medication.

2.Availability of Medicines: The easy availability of over-the-counter (OTC) medications and the sale of prescription drugs without a valid prescription by pharmacies and other outlets significantly contribute to the practice.

3.Dissatisfaction with Services: Previous negative experiences with healthcare providers, perceived low-quality consultations, or a lack of respect for patient privacy can lead people to avoid formal medical care.

Individual and Psychological Factors

1.Perceived Illness Severity: People are more likely to self-medicate for symptoms they consider minor or not serious enough to warrant a doctor's visit (e.g., headache, cold, flu, general pain).

2.Prior Experience: Previous successful experiences with a specific medication or treatment for similar symptoms is a strong predictor of future self-medication.

3.Knowledge and Self-Confidence: A belief in one's own knowledge about health conditions and available treatments fosters the confidence to self-medicate.

4.Influence of Others: Recommendations from family members, friends, or pharmacists are common sources of information and encouragement for self-medication.

5.Information Sources: The internet, social media, and advertising play a role in providing information (or misinformation) that influences self-medication decisions.

6.Psychological Distress: Conditions like depression, anxiety, or stress can lead some individuals to self-medicate using various substances to alleviate their symptoms.

7.Fear and Stigmatization: During events like a pandemic, fear of infection at health facilities or fear of social stigmatization can push people toward self-treatment.

EFFECTS/RISK OF SELF MEDICATION

Self-medication carries significant risks, primarily due to incorrect self-diagnosis and inappropriate treatment, which can lead to severe health complications, organ damage, and in some cases, death.

Key effects and risks include:

1.Incorrect Self-Diagnosis: Symptoms of minor ailments can mask serious underlying conditions. For example, a persistent headache or stomach ache could be a sign of a more severe illness (like a stroke or an ulcer) that requires professional medical intervention.

2.Delays in Seeking Medical Attention: Relying on self-medication may provide temporary relief, causing a delay in seeking proper medical advice. This can allow the underlying condition to worsen and become more difficult to treat effectively.

3.Incorrect Dosage and Administration: Without professional guidance, individuals may take an inadequate dosage, leading to treatment failure, or an excessive dosage, which can result in toxicity and damage to organs like the liver and kidneys.

4.Adverse Drug Reactions and Side Effects: Medications can have a range of side effects, some of which may be rare but severe. An individual may not be aware of potential allergies (e.g., to penicillin) which could lead to life-threatening reactions like anaphylactic shock.

5.Dangerous Drug Interactions: Mixing different medications (including over-the-counter drugs, prescription drugs, or even herbal remedies and alcohol) without knowing their chemical interactions can produce harmful or even fatal effects.

6.Antibiotic Resistance: The unnecessary and irrational use of antibiotics for viral infections (like the common cold or flu) or incomplete courses of treatment contribute to the global problem of antimicrobial resistance, rendering these vital drugs ineffective when they are truly needed.

7.Dependence and Abuse: Certain medications, such as painkillers, sleep aids, or cough syrups, can be habit-forming. Long-term self-medication can lead to substance use disorders or addiction.

8.Worsening of Mental Health Conditions: Self-medicating for mental health issues like anxiety or depression with substances such as alcohol or drugs often makes the symptoms worse over time, trapping the individual in a downward spiral of worsening mood and increased substance use.

9.Risks for Vulnerable Populations: Certain medications are unsafe for specific groups, such as children, the elderly, and pregnant or breastfeeding women, and can cause birth defects or other serious health problems.

Types of Self-Medication

Self-medication can be classified in several ways:

- ✓ by type of medicine used
- ✓ by reason or purpose
- ✓ by source of medicine

Below are the major categories.

1. Over-the-Counter (OTC) Medication

These are medicines legally available without a prescription.

Examples:

Painkillers: Paracetamol, ibuprofen

Antacids: for acidity/heartburn

Anti-allergy drugs: Cetirizine, loratadine

Cold/cough syrups

Vitamin supplements

Topical creams (antifungal/antiseptic)

Nature of use:

Usually considered safe for short-term use when used correctly.

2. Prescription Medicines Used Without Prescription

This is one of the most dangerous forms of self-medication.

Examples:

Antibiotics (amoxicillin, azithromycin)

Steroids (prednisone, dexamethasone)

Psychiatric drugs (sleeping pills, antidepressants)

Blood pressure/diabetes medicines

Opioid painkillers

Risks:

Wrong dosage

Serious side effects

Masking major diseases

Antibiotic resistance

3. Herbal / Traditional / Ayurvedic Self-Medication

People use plant-based or traditional remedies on their own.

Examples:

Herbal teas (ginger, turmeric)

Ayurvedic tablets/tonics

Home remedies like honey, garlic, tulsi

Risks:

Not all herbs are safe

Unknown interactions with other medicines

Overuse can damage liver/kidneys

4. Self-Medication with Supplements

Includes vitamins, minerals, and gym/fitness supplements.

Examples:

Vitamin C, D, B complexes

Iron or calcium tablets

Protein powders

Weight-loss supplements

Energy boosters

Risks:

Excess vitamins can cause toxicity

Supplements may interact with medicines

Misleading labels

5.Substance-Based Self-Medication

Using substances to manage emotional or physical discomfort.

Examples:

Alcohol to reduce stress or help sleep

Smoking for anxiety

Recreational drugs to escape emotional issues

Risks:

HIGH risk of addiction, mental health issues, and physical harm.

6. Leftover or Borrowed Medicine

Using medicines kept from prior prescriptions or medicines belonging to others.

Examples:

Taking someone's antibiotic

Using leftover pain medicines

Sharing cough syrups or creams

Risks:

Wrong drug choice

Wrong dose

Hidden allergies

7. Self-Diagnosis + Self-Treatment

Using online information or personal judgment to diagnose yourself and treat it.

Examples:

Googling symptoms and starting a drug

Choosing medicines based on past experience

Risks:

Misdiagnosis

Using the wrong medicine

Delayed proper treatment

8. Cosmetic & Dermatological Self-Medication

Using skin medicines without medical advice.

Examples:

Steroid creams for fairness

Acne creams

Hair-loss treatments

Anti-fungal creams

Risks:

Skin thinning

Worsening of infection

Permanent marks

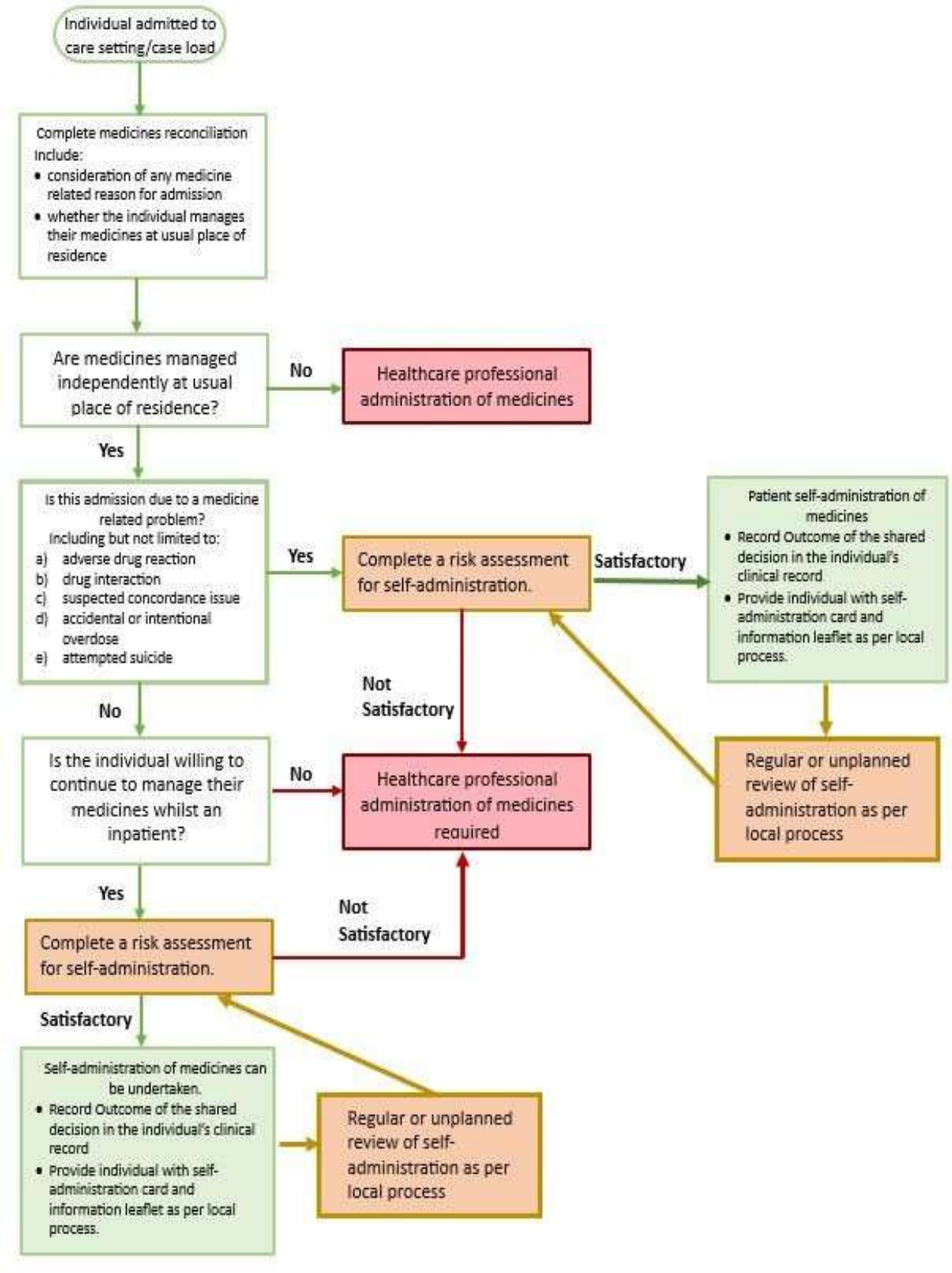

Fig no.2:- Implemnting Self Administration Of Medicines

PSYCHOLOGY AND PSYCHIATRY

Self-medication hypothesis

As different drugs have different effects, they may be used for different reasons. According to the self-medication hypothesis (SMH), the individuals' choice of a particular drug is not accidental or coincidental, but instead, a result of the individuals' psychological condition, as the drug of choice provides relief to the user specific to his or her condition. Specifically, addiction is hypothesized to function as a compensatory means to modulate effects and treat distressful psychological states, whereby

individuals choose the drug that will most appropriately manage their specific type of psychiatric distress and help them achieve emotional stability.The self-medication hypothesis (SMH) originated in papers by Edward Khantzian, Mack and Schatzberg, David F. Duncan, and a response to Khantzian by Duncan. The SMH initially focused on heroin use, but a follow-up paper added cocaine. The SMH was later expanded to include alcohol, and finally all drugs of addiction. According to Khantzian's view of addiction, drug users compensate for deficient ego function by using a drug as an "ego solvent", which acts on parts of the self that are cut off from consciousness by defense mechanisms. According to Khantzian, drug dependent individuals generally experience more psychiatric distress than non-drug dependent individuals, and the development of drug dependence involves the gradual incorporation of the drug effects and the need to sustain these effects into the defensive structure-building activity of the ego itself. The addict's choice of drug is a result of the interaction between the psychopharmacologic properties of the drug and the affective states from which the addict was seeking relief. The drug's effects substitute for defective or non-existent ego mechanisms of defense. The addict's drug of choice, therefore, is not random. While Khantzian takes a psychodynamic approach to self-medication, Duncan's model focuses on behavioral factors. Duncan described the nature of positive reinforcement (e.g., the "high feeling", approval from peers), negative reinforcement (e.g. reduction of negative affect) and avoidance of withdrawal symptoms, all of which are seen in those who develop problematic drug use, but are not all found in all recreational drug users. While earlier behavioral formulations of drug dependence using operant conditioning maintained that positive and negative reinforcement were necessary for drug dependence, Duncan maintained that drug dependence was not maintained by positive reinforcement, but rather by negative reinforcement. Duncan applied a public health model to drug dependence, where the agent (the drug of choice) infects the host (the drug user) through a vector (e.g., peers), while the environment supports the disease process, through stressors and lack of support. Khantzian revisited the SMH, suggesting there is more evidence that psychiatric symptoms, rather than personality styles, lie at the heart of drug use disorders. Khantzian specified that the two crucial aspects of the SMH were that drugs of abuse produce a relief from psychological suffering and the individual's preference for a particular drug is based on its psychopharmacological properties. The individual's drug of choice is determined through experimentation, whereby the interaction of the main effects of the drug, the individual's inner psychological turmoil, and underlying personality traits identify the drug that produces the desired effects. Meanwhile, Duncan's work focuses on the difference between recreational and problematic drug use. Data obtained in the Epidemiologic Catchment Area Study demonstrated that only 20% of drug users ever experience an episode of drug abuse (Anthony & Helzer, 1991), while data obtained from the National Comorbidity Study demonstrated that only 15% of alcohol users and 15% of illicit drug users ever become dependent. A crucial determinant of whether a drug user develops drug abuse is the presence or absence of negative reinforcement, which is experienced by problematic users, but not by recreational users. According to Duncan, drug dependence is an avoidance behavior, where an individual finds a drug that produces a temporary escape from a problem, and taking the drug is reinforced as an operant behavior.

Specific mechanisms

Some people who have a mental illness attempt to correct their illnesses by using certain drugs. Depression is often self-medicated by the use of alcohol, tobacco, cannabis, or other mind-altering drugs. While this may provide immediate relief of some symptoms such as anxiety, it may evoke and/or exacerbate some symptoms of several kinds of mental illnesses that are already latently present, and may lead to addiction or physical dependency, among other side effects of long-term use of the drug. This does not differ significantly from the potential effects of drugs provided by physicians, which are equally capable of producing dependency and/or addiction and also have side effects arising from long-term use. People with post-traumatic stress disorder have been known to self-medicate, as well as many individuals without this diagnosis who have experienced psychological trauma. Due to the different effects of the different classes of drugs, the SMH postulates that the appeal of a specific class of drugs differs from person to person. In fact, some drugs may be aversive for individuals for whom the effects could worsen affective deficits.

CNS depressants

Alcohol and sedative/hypnotic drugs, such as barbiturates and benzodiazepines, are central nervous system (CNS) depressants that lower inhibitions via anxiolysis. Depressants produce feelings of relaxation and sedation, while relieving feelings of depression and anxiety. Though they are generally ineffective antidepressants, as most are short-acting, the rapid onset of alcohol and sedative/hypnotics softens rigid defenses and, in low to moderate doses, provides relief from depressive affect and anxiety. As alcohol also lowers inhibitions, alcohol is also hypothesized to be used by those who normally constrain emotions by attenuating intense emotions in high or obliterating doses, which allows them to express feelings of affection, aggression and closeness. Most patients that have been hospitalized for substance use or alcohol dependence reported using drugs in response to depressive symptoms. This type of misuse is more likely in men than in women. This makes diagnosing a psychiatric disorder very difficult in substance abusers, because of self medicating.

Psychostimulants

Psychostimulants, such as cocaine, amphetamines, methylphenidate, caffeine, and nicotine, produce improvements in physical and mental functioning, including increased energy and alertness. Stimulants tend to be most widely used by people with attention deficit hyperactivity disorder (ADHD), which can either be diagnosed or undiagnosed. Because a significant portion of people with ADHD have not been diagnosed they are more prone to using stimulants like caffeine, nicotine or pseudoephedrine to mitigate their symptoms. Unawareness concerning the effects of illicit substances such as cocaine, methamphetamine or mephedrone can result in self-medication with these drugs by individuals affected with ADHD symptoms. This self medication can effectively prevent them from getting diagnosed with ADHD and receiving treatment with stimulants like methylphenidate and amphetamines. Stimulants also can be beneficial for individuals who experience depression, to reduce anhedonia and increase self-esteem, however in some cases depression may occur as a comorbid condition originating from the prolonged presence of negative symptoms of undiagnosed ADHD, which can impair executive functions, resulting in lack of motivation, focus and contentment with one's life, so stimulants may be useful for treating treatment-resistant depression, especially in individuals thought to have

ADHD. The SMH also hypothesizes that hyperactive and hypomanic individuals use stimulants to maintain their restlessness and heighten euphoria. Additionally, stimulants are useful to individuals with social anxiety by helping individuals break through their inhibitions.[23] Some reviews suggest that students use psychostimulants to self medicate for underlying conditions, such as ADHD, depression or anxiety.

Opiates

Opiates, such as heroin and morphine, function as an analgesic by binding to opioid receptors in the brain and gastrointestinal tract. This binding reduces the perception of and reaction to pain, while also increasing pain tolerance. Opiates are hypothesized to be used as self-medication for aggression and rage. Opiates are effective anxiolytics, mood stabilizers, and anti-depressants, however, people tend to self-medicate anxiety and depression with depressants and stimulants respectively, though this is by no means an absolute analysis. Modern research into novel antidepressants targeting opioid receptors suggests that endogenous opioid dysregulation may play a role in medical conditions including anxiety disorders, clinical depression, and borderline personality disorder.[41][42][43] BPD is typically characterized by sensitivity to rejection, isolation, and perceived failure, all of which are forms of psychological pain. As research suggests that psychological pain and physiological pain both share the same underlying mechanism, it is likely that under the self-medication hypothesis some or most recreational opioid users are attempting to alleviate psychological pain with opioids in the same way opioids are used to treat physiological pain.

Cannabis

Cannabis is paradoxical in that it simultaneously produces stimulating, sedating and mildly psychedelic properties and both anxiolytic or anxiogenic properties, depending on the individual and circumstances of use. Depressant properties are more obvious in occasional users, and stimulating properties are more common in chronic users. Khantzian noted that research had not sufficiently addressed a theoretical mechanism for cannabis, and therefore did not include it in the SMH.

Effectiveness

Self-medicating excessively for prolonged periods of time with benzodiazepines or alcohol often makes the symptoms of anxiety or depression worse. This is believed to occur as a result of the changes in brain chemistry from long-term use. Of those who seek help from mental health services for conditions including anxiety disorders such as panic disorder or social phobia, approximately half have alcohol or benzodiazepine dependence issues. Sometimes anxiety precedes alcohol or benzodiazepine dependence but the alcohol or benzodiazepine dependence acts to keep the anxiety disorders going, often progressively making them worse. However, some people addicted to alcohol or benzodiazepines, when it is explained to them that they have a choice between ongoing poor mental health or quitting and recovering from their symptoms, decide on quitting alcohol or benzodiazepines or both. It has been noted that every individual has an individual sensitivity level to alcohol or sedative hypnotic drugs, and what one person can tolerate without ill health, may cause another to experience very ill health, and even moderate drinking can cause rebound anxiety syndrome and sleep disorders. A person experiencing the toxic effects of alcohol will not benefit from other therapies or medications, as these do not address the root cause of the symptoms. Nicotine addiction seems to worsen mental health problems. Nicotine withdrawal depresses mood, increases anxiety and stress, and disrupts sleep. Although nicotine products temporarily relieve their nicotine withdrawal symptoms, an addiction causes stress and mood to be worse on average, due to mild withdrawal symptoms between hits. Nicotine addicts need the nicotine to temporarily feel normal. Nicotine industry marketing has claimed that nicotine is both less harmful and therapeutic for people with mental illness, and is a form of self-medication. This claim has been criticised by independent researchers. Self medicating is a very common precursor to full addictions and the habitual use of any addictive drug has been demonstrated to greatly increase the risk of addiction to additional substances due to long-term neuronal changes. Addiction to any/every drug of abuse tested so far has been correlated with an enduring reduction in the expression of GLT1 (EAAT2) in the nucleus accumbens and is implicated in the drug-seeking behavior expressed nearly universally across all documented addiction syndromes. This long-term dysregulation of glutamate transmission is associated with an increase in vulnerability to both relapse-events after re-exposure to drug-use triggers as well as an overall increase in the likelihood of developing addiction to other reinforcing drugs. Drugs which help to re-stabilize the glutamate system such as N-acetylcysteine have been proposed for the treatment of addiction to cocaine, nicotine, and alcohol.

II. CONCLUSIONS

This review concludes that self-medication is a common and growing global practice, shaped by personal, socioeconomic, and systemic factors. Although it may contribute to efficient management of minor conditions, unsafe self-medication poses serious health risks, including medication errors, adverse reactions, and rising antimicrobial resistance.

To promote safer practices, policymakers and health authorities should prioritize:

1. Strengthening regulations governing over-the-counter medication sales.

2. Enhancing public awareness regarding the risks of inappropriate self-medication.

3. Improving access to primary healthcare services, reducing barriers that lead individuals to self-treat.

4. Promoting responsible antibiotic use through stewardship and community education.

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