

Understanding Kratom:

A Comparative Safety and Risk Analysis



Introduction

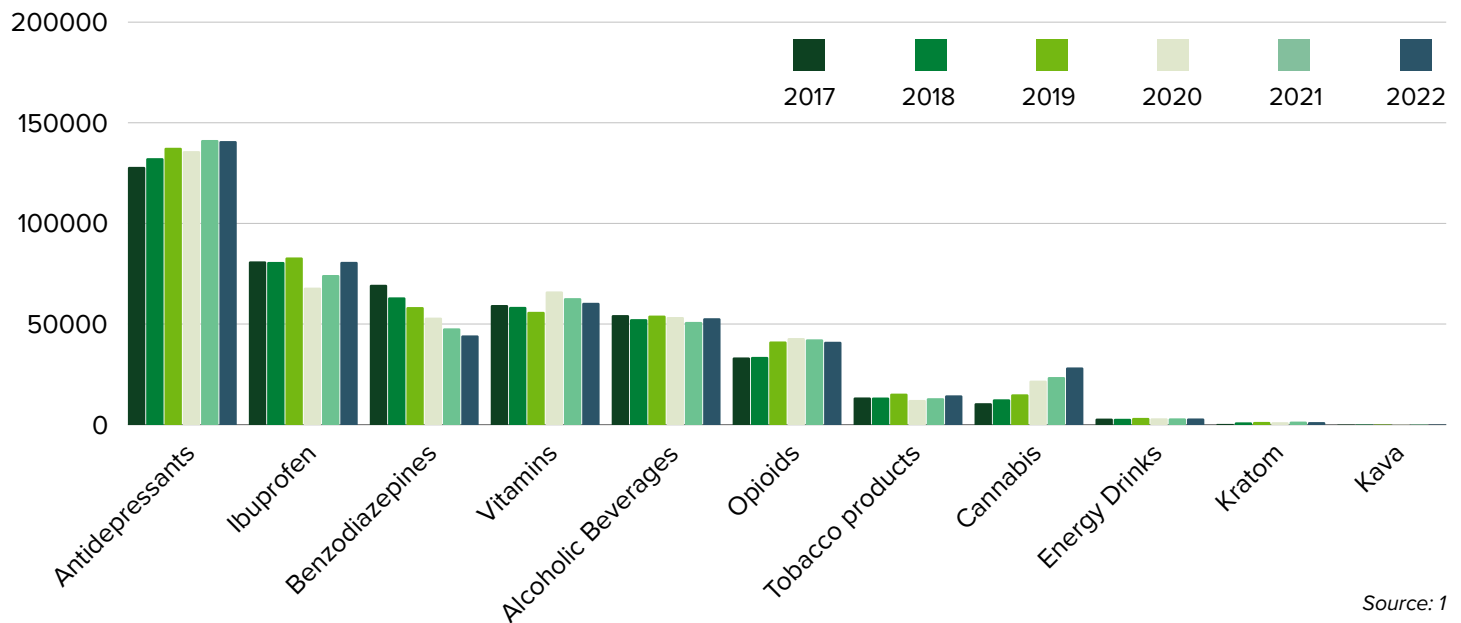
All substances have the potential to cause consumer harm and it is important to understand the relative risks of experiencing harm when making personal decisions of products to use or formulating health policy for a population of people. By using publicly available data of adverse events reported to the Food and Drug Administration (FDA), poison control center calls, and data on prevalence, severity, and symptom endorsement of Substance Use Disorder (SUD) criteria as defined by the Diagnostic and Statistical Manual Version 5 (DSM-5), we can assess the risk profile of kratom relative to other substances. This paper will inform consumers regarding the safety and potential risks of kratom use by comparing it to a variety of legal and illicit substances.

Analyzing Reported Adverse Events: A Comparative Assessment of Kratom's Physical Impact

The American Association of Poison Control Centers (AAPCC) is an objective source of adverse events associated with different substances. Between 2017 and 2022, calls to Poison Control Centers regarding kratom were significantly fewer compared to other substances, such as opioids and alcohol. This shows that kratom is less likely to cause acute health emergencies.

Poison Center Calls Per Substance

2017 - 2022



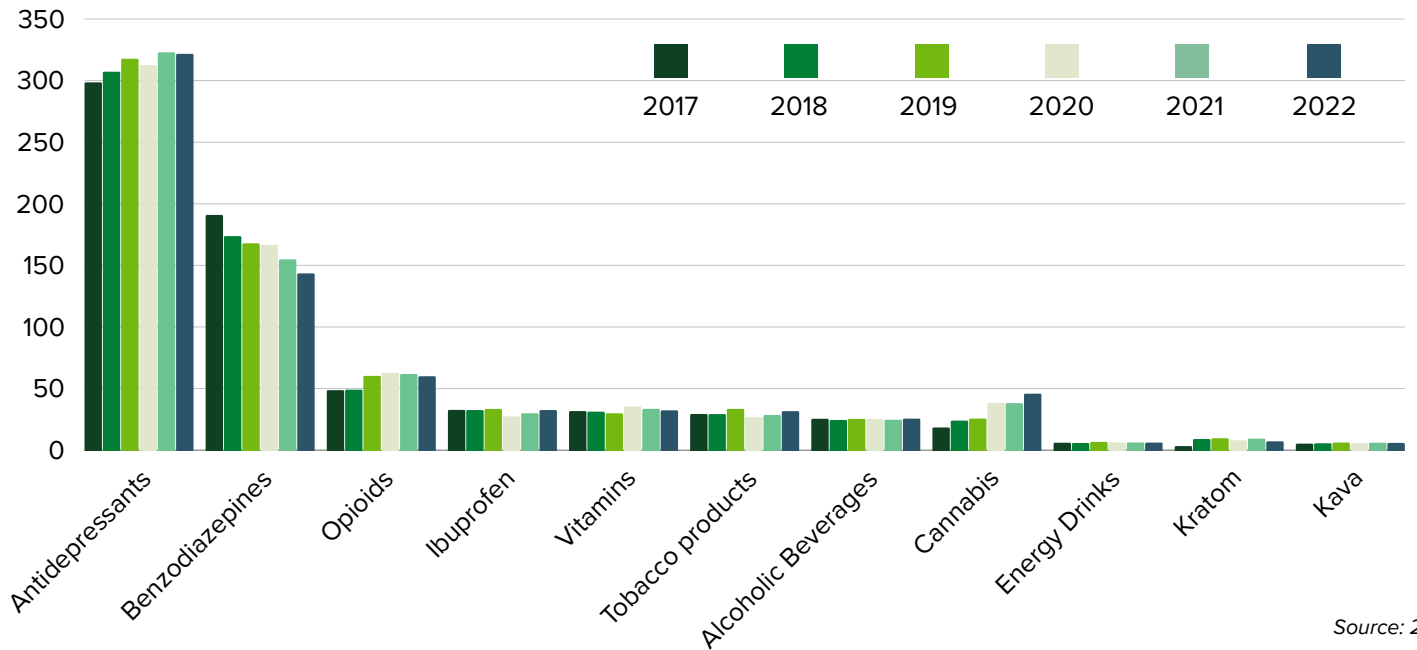
Source: 1

Some substances are used more commonly than others and may have more reported adverse events but fewer events per user. As such, dividing the calls by the number of users in the United States is an important additional metric.

Analysis of poison control center calls from 2017 to 2022 reveals that kratom-related incidents are considerably lower than those for opioids and alcohol. This low incidence rate suggests that kratom is less likely to cause immediate health crises.

Poison Center Calls Per 100K Users

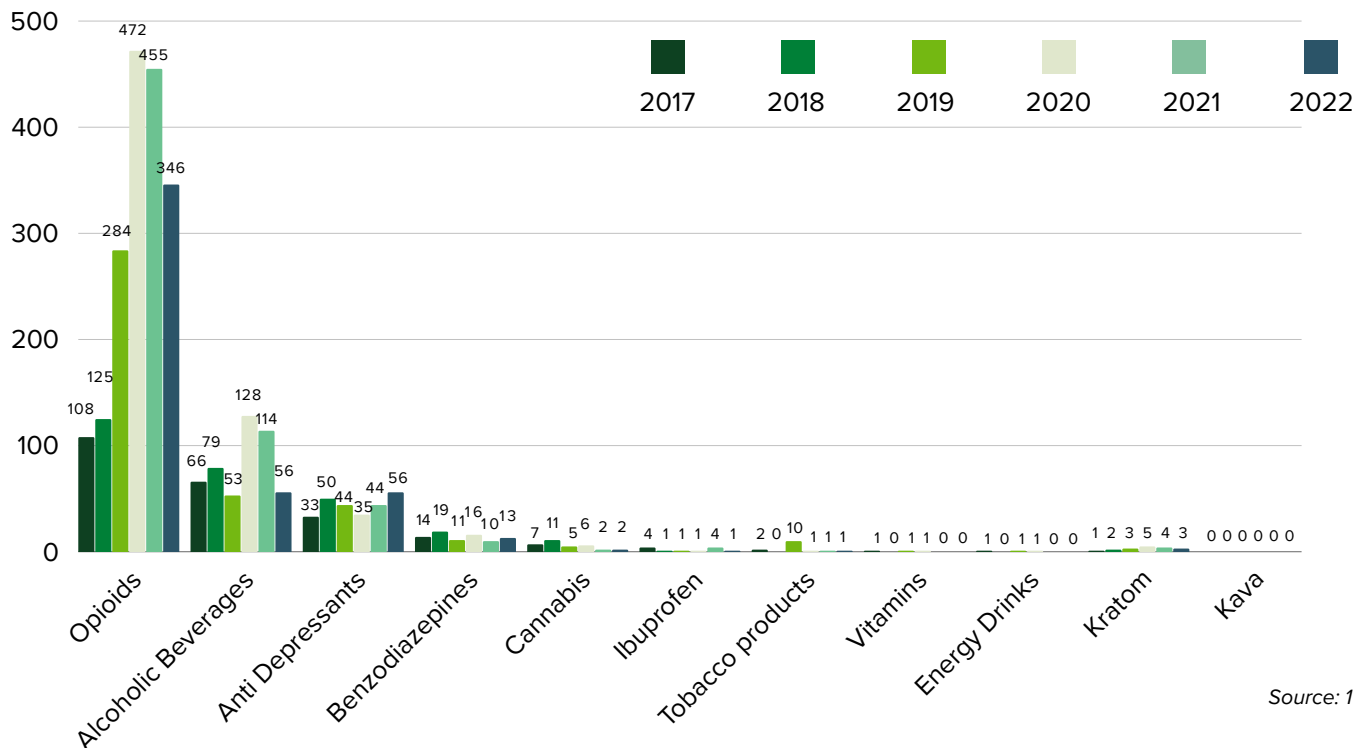
2017 - 2022



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Poison Center Calls Deaths Per Substance

2017 - 2022



Source: 1

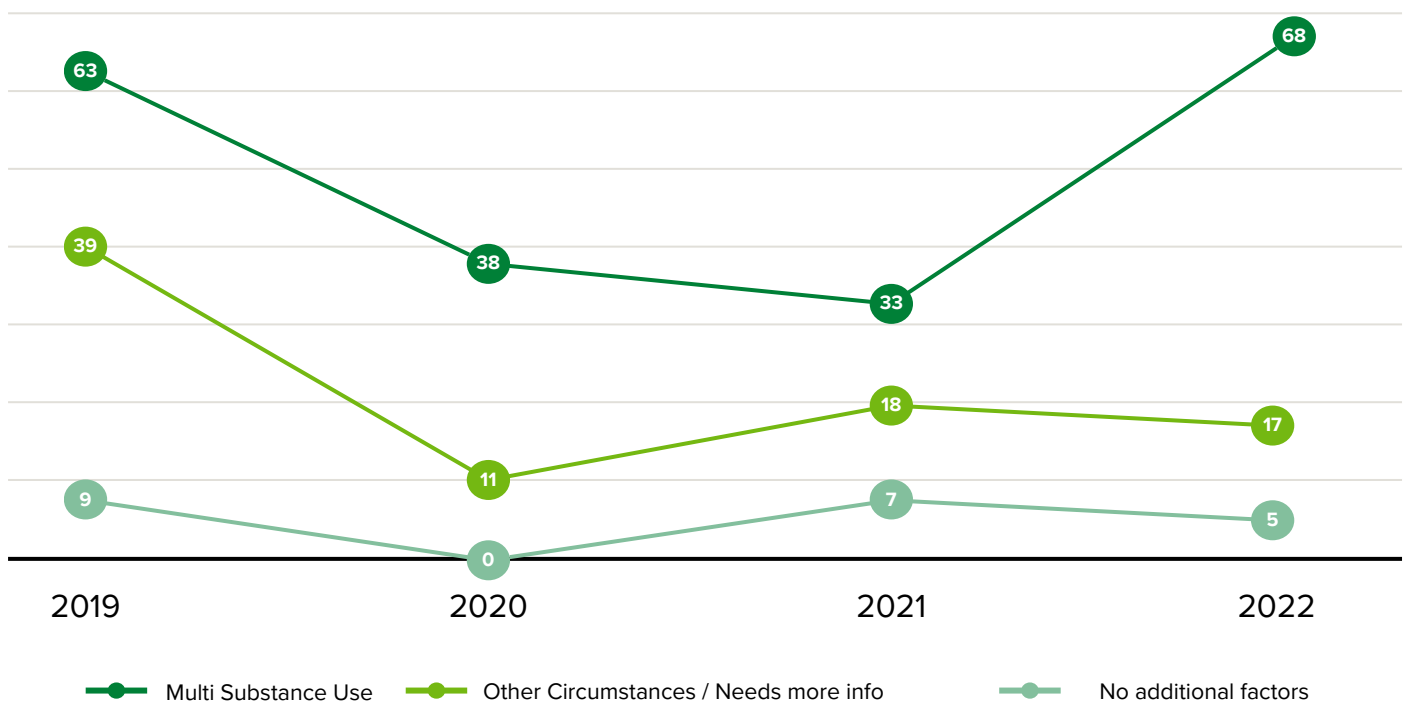
Even when kratom is associated with a death, there are frequently other substances being used in the patient at the same time. The extent to which kratom was the cause, a contributor, or an innocent bystander can often not be determined in these cases.

The data on deaths associated with substance use further supports kratom's relative safety. Upon review of the FDA Adverse Event Reporting System (FAERS) between 2019 to 2022, it is clear that most cases that involved death involved multi-substance use.

Kratom has a relatively low mortality rate, which suggests a lower level of risk, and data from the FDA Adverse Event Reporting System (FAERS) shows a decrease in deaths only involving kratom from 2019 to 2021. This evidence together highlights that kratom's risks, though present, are much smaller than those of many other substances.

Kratom-Involved Death Analyses

2019 - 2022

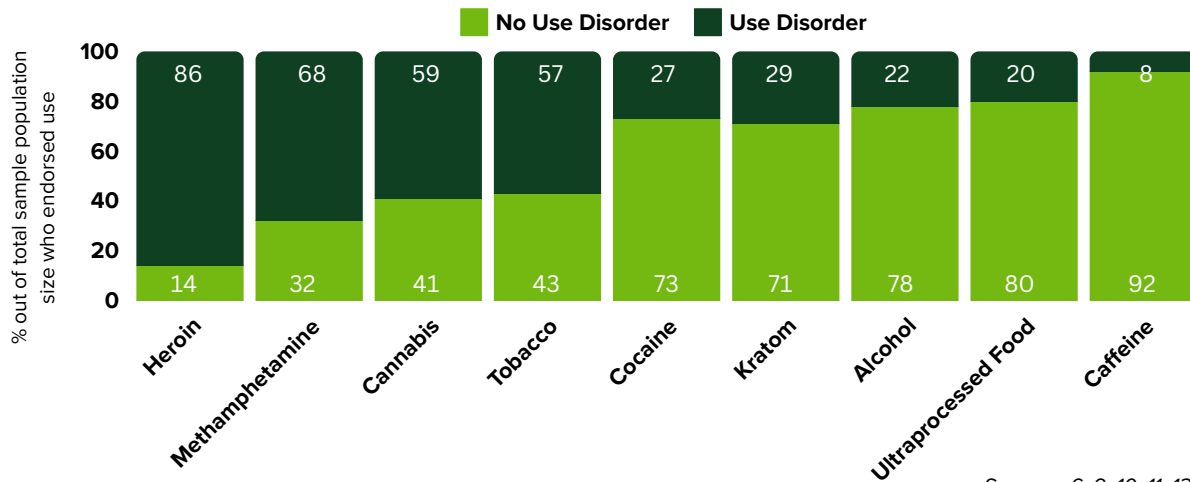


Source: 5

Substance Use Disorder Data

Prevalence

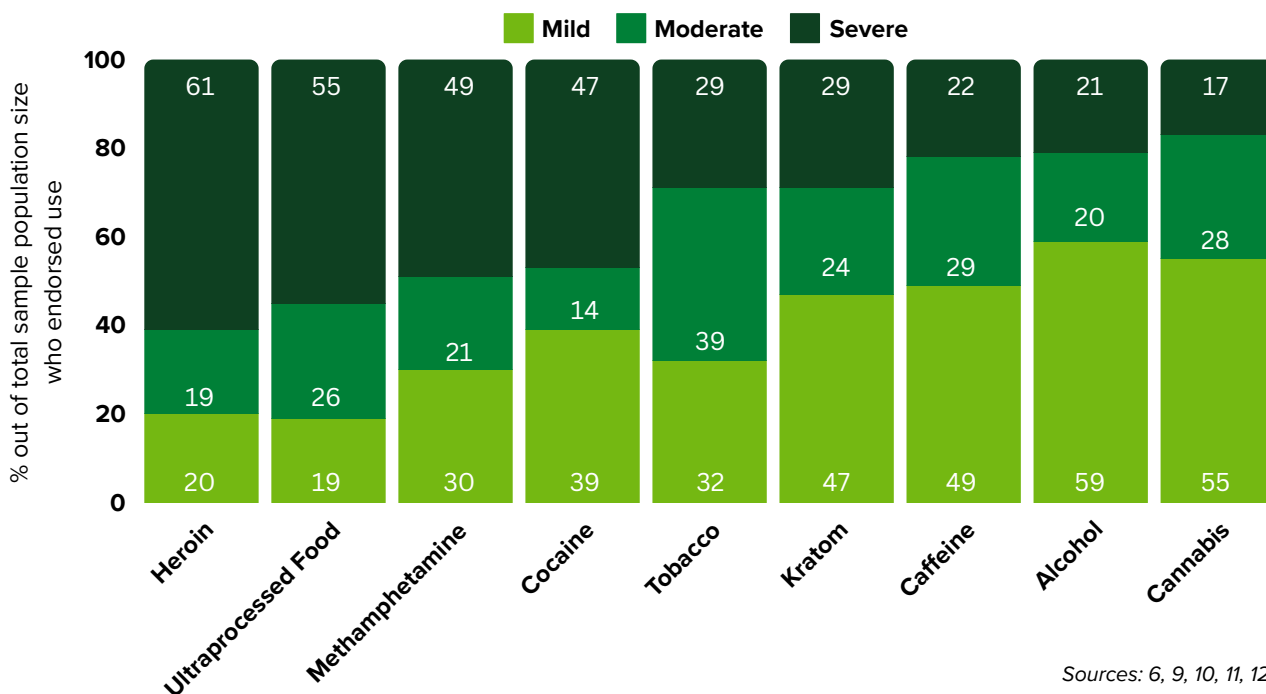
The DSM-5 criteria for Substance Use Disorders (SUD) provide a structured approach to understanding addiction across various substances. Heroin exhibits a high prevalence of SUD, with 85.79% of users developing addiction and 61.00% of these cases classified as severe. Similarly, methamphetamine and opioids show high prevalence rates of 67.50% and 68.59%, respectively, with substantial portions of users experiencing severe addiction.



Sources: 6, 9, 10, 11, 13

Severity of Substance Use Disorders

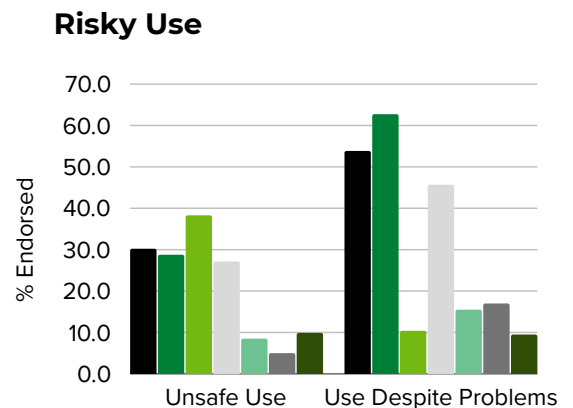
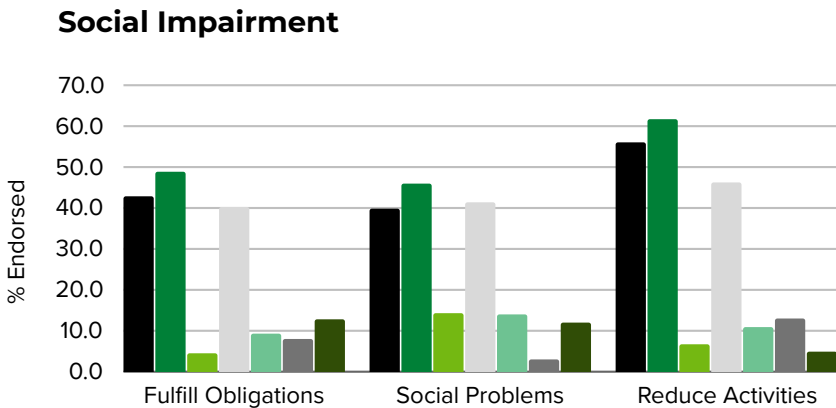
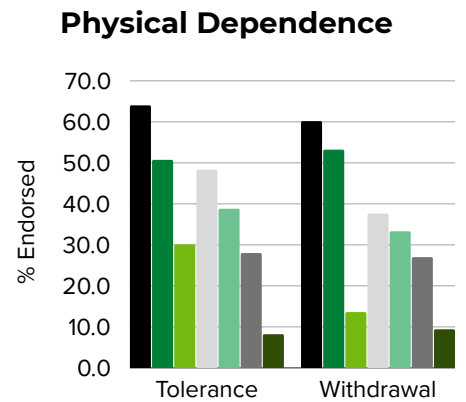
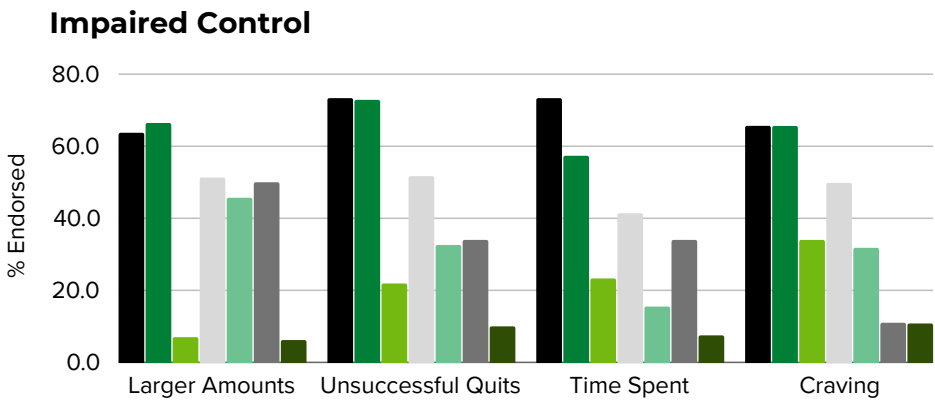
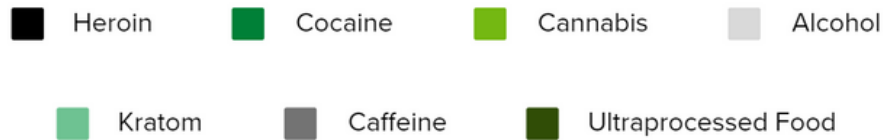
In stark contrast, kratom presents a lower SUD prevalence of 29.50%. The severity of SUD among kratom users is typically less intense. Only 28.81% of kratom users experience severe SUD, while a majority, 47.46%, fall into the mild category. This distribution shows that kratom, while potentially habit-forming, is less addictive than more dangerous substances. Its addiction profile is more akin to that of caffeine, which is legally consumed worldwide and known for its mild addiction potential.



Sources: 6, 9, 10, 11, 12

Substance Use Disorder Data Continued

Examining the symptom endorsement data from the DSM-5 helps provide a clearer picture of how different substances impact users. Impaired control, social impairment, risky use, and physical dependence are the key categories considered. Impaired control involves using larger amounts or for longer durations than intended, repeated unsuccessful attempts to quit, and significant time spent on substance use. Social impairment highlights the negative consequences on personal relationships and responsibilities, while risky use emphasizes the dangers of consuming substances in hazardous situations. Physical dependence, characterized by tolerance and withdrawal symptoms, underscores the physiological impacts of a use disorder.



Sources: 3, 4, 7, 9, 10

Kratom, while it can lead to SUD, tends to show symptoms more aligned with physical dependence and impaired control rather than risky use and social impairment; this contrasts with substances like heroin, cocaine, and alcohol, which exhibit high levels of social impairment and risky use. Therefore, while kratom is habit-forming, it does not represent the same level of societal risk as substances that have caused widespread social harm. Many users report that kratom, despite its habit-forming properties, is beneficial to their daily lives, which further aligns its profile closer to substances like caffeine and alcohol rather than illicit drugs.

Conclusion

As the data illustrates, kratom has some physical impacts and can be habit-forming, but its risk profile is significantly lower compared to many other substances. Kratom's safety and addiction potential are more closely aligned with commonplace substances like caffeine and alcohol rather than highly addictive drugs like heroin and methamphetamine.

Understanding these risks in the context of individual consumption patterns and risk profiles is crucial. This knowledge enables more informed decision-making regarding substance use. By considering comprehensive data on kratom, individuals and policymakers can better assess its place within the broader spectrum of substance safety and addiction potential. Ultimately, these insights can help develop balanced public health policies and promote safer consumption practices.

Sources

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