



Report: Cocaethylene, Recreational Cocaine Use, and Suicide Risk in the UK (2020–2025)

Abstract

Recreational cocaine use in the United Kingdom has become increasingly normalised across diverse social groups. While prevalence appears stable, harm indicators, including hospital admissions, mental health crises, and deaths are rising. A critical but under-recognised factor is cocaethylene, a toxic metabolite formed when cocaine and alcohol are co-used. This brief report synthesises current research (2020–2025) exploring the relationship between cocaethylene, neuropsychological effects, and suicide risk. Although direct causal research remains limited, converging evidence demonstrates that cocaethylene contributes to impulsivity, mood instability, and acute risk states strongly associated with suicidal behaviour. The findings highlight an urgent need for targeted public health education.

1. Introduction

Cocaine remains one of the most commonly used illicit stimulants in the UK. According to the Office for National Statistics (2025), approximately 2.1% of adults reported past-year use, equating to over one million individuals. Increasingly, cocaine is used in combination with alcohol in social settings, resulting in the formation of cocaethylene.

Cocaethylene has been shown to possess greater toxicity and longer duration of action than cocaine alone, yet awareness of its risks remains low among recreational users. This report examines emerging evidence linking cocaethylene to neurobiological changes, behavioural dysregulation, and suicide risk.

2. Cocaethylene: Pharmacology and Toxicity

Cocaethylene is produced in the liver when ethanol and cocaine are present simultaneously. Compared to cocaine, it:

- Has a longer half-life
- Produces greater cardiotoxicity
- Enhances and prolongs dopaminergic activity

A review published in the *Journal of Medical Toxicology* highlights that cocaethylene increases strain on the cardiovascular and central nervous systems, raising the risk of sudden death (Pennings et al., 2020).

Similarly, research in *Addiction Biology* demonstrates that cocaethylene produces a more prolonged euphoric effect followed by a more pronounced depressive “crash” (Laizure et al., 2021).

3. Neuropsychological Effects and Behavioural Risk

Recent neuropsychiatric research indicates that cocaethylene affects key brain regions responsible for emotional regulation and decision-making.

A study in *Frontiers in Psychiatry* (2023) found that combined cocaine and alcohol use is associated with:

- Reduced prefrontal cortex regulation
- Increased impulsivity
- Heightened emotional reactivity

These effects are strongly associated with self-harm and suicide-related behaviours, particularly during acute intoxication or withdrawal phases.

4. Cocaine, Alcohol, and Suicide Risk

While cocaethylene-specific suicide studies remain limited, substantial evidence links combined cocaine and alcohol use to increased suicide risk.

A major review in *Neuroscience & Bio-behavioural Reviews* (2022) found that:

- Both cocaine and alcohol independently increase suicide risk
- Combined use produces multiplicative effects, not merely additive

Further, *The Lancet Psychiatry* (2022) reported that polysubstance use significantly increases:

- Suicidal ideation
- Suicide attempts
- Impulsive behaviours

A case-crossover analysis in the *American Journal of Psychiatry* (2021–2024 updates) demonstrated that suicide risk is significantly elevated during and immediately following cocaine intoxication, with alcohol co-use identified as a key exacerbating factor.

5. UK Trends and Emerging Concerns

UK data highlights a concerning shift:

- Rising cocaine-related hospital admissions
- Increasing drug-related deaths involving cocaine and alcohol
- Growing use among non-dependent, socially stable populations

The Office for National Statistics (2024) reports that many deaths involving cocaine also involve alcohol, suggesting cocaethylene may play a role in both intentional and unintentional fatalities.

6. Mechanisms Linking Cocaethylene to Suicide

The literature suggests that cocaethylene contributes to suicide risk through the following pathways:

1. Impulsivity and Disinhibition

- Reduced executive control
- Increased likelihood of acting on transient thoughts

2. Mood Instability

- Intense euphoria followed by depressive crash
- Heightened emotional volatility

3. Neurochemical Dysregulation

- Dopamine depletion post-use
- Increased anxiety and dysphoria

4. Physiological Stress

- Cardiovascular strain
- Increased agitation and panic

Together, these create a high-risk psychological state, and this transient psychosis is implicated in many suicides carried out in the comedown period.

7. Research Gaps

Despite strong indirect evidence, there remains:

- Limited direct research on cocaethylene-specific suicide outcomes
- Underreporting in toxicology and death classification
- Lack of public awareness and education

This represents a critical gap in both research and public health intervention.

8. Conclusion

Cocaethylene represents a hidden but significant risk factor in recreational cocaine use. While often perceived as a low-risk, socially acceptable activity, the combination of cocaine and alcohol produces neurobiological and psychological effects that significantly increase the risk of impulsive and potentially fatal behaviours, including suicide.

There is an urgent need for targeted public health education that moves beyond addiction frameworks to address recreational use and emotional drivers.

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