▶ Probability and predictors of remission from life-time nicotine, alcohol, cannabis or cocaine dependence: results from the National Epidemiologic Survey on Alcohol and Related Conditions.

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The largest recent US national survey of drink and drug problems shows that outside the addiction treatment clinic, remission is the norm and recovery common. After 14 years half the people at some time dependent on alcohol were in remission, a milestone reached for cannabis after six years, and for cocaine after just five.

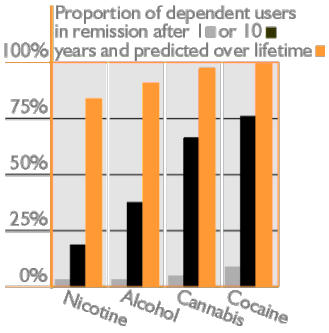
Summary Among the US general adult population, and for each of nicotine, alcohol, cannabis and cocaine (including crack), this study sought to estimate the time from onset of dependence to remission, the cumulative probability of remission in different racial/ethnic groups, and to identify factors related to the probability of remission.

It drew its data from the National Epidemiological Survey of Alcohol and Related Conditions (NESARC) conducted in 2000–2001, which focused on drinking disorders but also asked about other forms of drug use and psychological problems. The aim was to interview a representative sample of civilian, non-institutionalised adults aged 18 and over living in households and group residences such as college halls, boarding houses and non-transient hotels. About 8 in 10 of the sample responded to the survey yielding 43,093 respondents. The featured report investigated the subgroups who had some time in their lives been dependent on nicotine (of which there were 6937), alcohol (4781), cannabis (530) or cocaine (408).

Dependence was defined as meeting the dependence criteria of the applicable version of the American Psychiatric Association's DSM manual, DSM-IV. 'Lifetime' dependence was diagnosed if the respondent reported having experienced at least three specific signs of this syndrome within the same 12-month period at some point in their life. The age this first happened for any particular substance was the onset year, while the remission year was based on the age when the respondent's answers indicated they had last stopped meeting dependence criteria for the drug, and had continued to do so for at least a year until interviewed for the survey – essentially, the most recent (at least so far) lastingly *successful* remission. It was on this basis that the study calculated remission rates for individual substances and related them to the time between the onset of dependence and remission.

Main findings

Within a year of first becoming dependent, 3% each of smokers and drinkers were in remission and remained so until they were surveyed. For cannabis the figure was nearly 5% and for cocaine, nearly 9%. After ten years the proportions in remission had risen to 18% for nicotine, 37% for alcohol, 66% for cannabis and 76% for cocaine ▶ chart. It could be estimated that by the end of their lives 84% of formerly dependent smokers would be in remission, 91% for alcohol, 97% for cannabis and 99% for cocaine. About 26 years after first becoming dependent, half the people at some time dependent on nicotine were in remission, a milestone reached for alcohol after 14 years, for cannabis six years, and for cocaine five years.



Once other factors had been taken in to account, for each of the substances, men who had been dependent at some time were significantly less likely than women to be in remission, especially in respect of the two illegal drugs, cannabis and cocaine; for every 10 women only about six men were in remission from dependence on these drugs. Black Americans once dependent on nicotine or cocaine were less likely to be in remission than white Americans – for cocaine, half as likely. After four years, about 50% of whites had sustained remission from dependence on cocaine; African Americans took nine years to reach the same milestone.

About 80% of people at some time dependent on nicotine or alcohol and almost all those once dependent on cannabis or cocaine had also at some time met diagnostic criteria for another psychiatric disorder, including conduct (antisocial behaviour in early life) and personality disorders. Once other factors had been taken in to account, people who had met criteria for conduct disorder were much more likely than others to have overcome their dependence on cannabis. In contrast, a diagnosis of a personality disorder was associated with a lower probability of remission from cannabis (and also alcohol) dependence. Having once experienced mood and anxiety disorders was unrelated to remission from dependence on any of the four substances.

The authors' conclusions

The general picture is that the vast majority of people in the USA once dependent on nicotine, alcohol, cannabis or cocaine stop being dependent at some point in their lives, and this happens after fewer years for cannabis or cocaine than for nicotine or alcohol. Black Americans stay dependent longer on nicotine and cocaine than white Americans, and probabilities of remission are associated with social and psychological characteristics and dependence on other substances. However, the fact that that many people once dependent were no longer at the time of the survey should be interpreted with caution given the irregular course of addictions punctuated by remissions and relapses; their remission may have been temporary. Possible explanations for these findings are considered below.

More than two thirds of remissions from cannabis and cocaine dependence occurred within the first decade after onset of dependence, but only a fifth for nicotine and a third for alcohol. These differences may be explained in part by how quickly adverse physical, psychological and social consequences become apparent. For instance, the risk of early cardiovascular problems is much higher among individuals dependent on cocaine than among those dependent on nicotine or alcohol. Behavioural disturbances resulting from cannabis or cocaine dependence and their illegal status impose stronger social pressures to remit. The pervasive availability of alcohol and nicotine also means pervasive environmental prompts to using the drugs. Particularly for nicotine, perceived immediate benefits including anxiety and stress reduction, improved cognitive performance, and weight control, may initially outweigh perceived potential harms from long-term use.

Consistent with previous studies, black Americans once dependent on cocaine were less likely to remit than their white counterparts. Psychosocial factors that commonly affect black populations, including discrimination and lower levels of social capital, have been recognised as barriers to remission and triggers to use or relapse; genetic factors may also contribute.

Men were less likely than women to remit from dependence, perhaps because substance use is more damaging (physically, mentally and socially) for women, heightening motivation to stop using. Feelings of guilt and concerns about substance use during pregnancy and child-rearing may also play a particular part in prompting remission among women.

Individuals who met criteria for a personality disorder were less likely to remit from alcohol or cannabis dependence. This may be because characteristics of these disorders such as being impulsive, intolerant to stress, anxious, and craving new experiences, also predispose to substance use, and these characteristics tend to persist.

Among the limitations of the study were that it omitted institutionalised individuals including prisoners. People whose substance use led to their early death would also have been missed, as may some with severe but non-fatal consequences. These omissions may have caused an overestimation of the probability of remission across the entire population. The study also had no information on the number and duration of remission episodes over an individual's lifetime; it could only relate other factors to the latest of these remissions.

FINDINGS The good news from this analysis is that, in the US context, rather than continued dependence, remission is the norm. Most people overcome or grow out of their dependence on the drugs analysed by the study – for cocaine and cannabis, after just five or six years, and for alcohol, after 14, and over their lives people continue to remit until nearly all are no longer dependent. But at least in respect of drinking, there are a set of multiply problematic drinkers who despite treatment, take many more years to stop being dependent. The findings on black versus white Americans suggest that remission rates depend on socioeconomic factors; sampled at another period in the USA's economic cycles or in respect of drugs used predominantly by more or less advantaged sections of the population, remission rates too might differ, and look more or less like the chronic disease model.

The data presented in the featured article did not show whether the user 'in remission' had simply become dependent on another drug. Within the set of illegal drugs and medicines, this seemed uncommon, because the *total* remission rate was so high. But it seems more than possible that some who matured out of illegal drug use instead took up heavy drinking, in social and legal terms, a dependence easier to live with as an adult.

Remission rates looking forward

An acknowledged weakness of the featured report is that it asked respondents to recall changes which may have happened many years ago. However, the survey was repeated about three years later when 87% of the people who still qualified for the survey were re-interviewed. The follow-up offered an opportunity to see how many dependent at the time of the first survey had recovered three years later. These analyses seem only to have been done for drinking, for which they confirm that most people cease to be dependent though most too continue to experience drink-related problems and to sometimes drink heavily, and remain vulnerable to relapse. This average impression results from the pooling of dramatically different trajectories, from older multiply problematic alcoholics who usually do not remit despite treatment, to youngsters who generally quickly remit without formal help. Details below.

Among the re-interviewed sample were 1172 of the 1484 people who had been dependent on alcohol in the year before the first interview three years before. Nearly two thirds were longer dependent in the year before the follow-up interview. So complete was their recovery that a fifth of those previously dependent had in the past year experienced no indications of abuse or dependence; of these, three quarters were still drinking. About 11% not only had no symptoms, but were exclusively drinking within low-risk guidelines, evenly split between those drinking moderately and those not drinking at all.

But this broad-brush picture hid substantial variation in the fates of different types of dependent drinkers. At one extreme were the most severely affected drinkers with multiple psychological problems and on average about nine years of dependence behind them, two thirds of whom were still dependent at the second interview. At the other were young adults and older drinkers with few complicating psychological disorders and few years of dependent drinking. For most of these the dip in to dependence was a phase which (at least for time being) was over by the the second interview, when just under 30% were still dependent.

At least for the three years between the surveys, remission was very stable. Among the re-interviewed sample were 1772 of the 2109 who three years before had been in "full remission" from past dependence on alcohol, meaning that even though they may sometimes have drunk above low-risk guidelines, for the past 12 months they had reported no symptoms of alcohol abuse or dependence. Of these just 5% had slipped back to being dependent in the year before the second interview, though a third who had been drinking above low-risk guidelines had re-experienced some symptoms of alcohol abuse or dependence. Most stable in their recovery were the abstainers, of whom just 1 in 50 experienced such symptoms. The much greater stability of recovery in abstainers and low-risk drinkers was confirmed when other factors had been taken in to account, but was not apparent among the younger adults in the sample.

Treatment's impact

Few dependent drug users recover through treatment and fewer still dependent on alcohol – in the NESARC survey on which the featured analysis was based, of those no longer dependent on alcohol, just 24% had at any time been in any kind of treatment for their drinking problems. Over two thirds of those who achieved more complete forms of recovery also did so without treatment.

While this shows that in the USA, treatment is generally not needed to recover from substance dependence, treatment may still make recovery more likely. In respect of dependence on alcohol, one analysis of data from the NESARC survey was consistent with formal treatment promoting recovery characterised by abstinence or low-risk drinking and no symptoms of abuse or dependence, but another and perhaps more reliable analysis found no such association.

Both however found that when treatment had been accompanied by attendance at 12-step mutual aid groups, recovery was more likely – especially abstinent recovery. These analyses could not however disentangle the possible effects of the motivation and conditions which drive someone to seek help, from the effect of actually receiving that help. Complicating the picture is the fact in this survey, the most severely affected and multiply comorbid drinkers with many years of dependence behind them were far more likely to seek treatment than less severely affected types of dependent drinkers. Despite seeking help, they were by a large margin the ones most likely to still be dependent when the survey was repeated three years later.

What about heroin and other opiates?

A notable omission from the illicit drugs included in the featured report was heroin and other opiates. Fortunately these were the subject of the greatest number of relevant studies in another review of follow-up studies of remission from dependence on amphetamine, cannabis, cocaine or opiate-type drugs. It included only studies of general populations or people who entered treatment in the normal way rather than enrolling in treatment trials.

Across the ten studies relevant to opiate-type drugs, every year on average between 22% and 9% of people were either abstinent or no longer dependent; the higher figure is the average of the proportions remitted among people who could be followed up, while the lower estimate includes cases who could not be followed and assumes they are still dependent. Generally the subjects were patients in treatment. Based mainly on patients in treatment, corresponding figures for cocaine were between 14% and 5%. The single study (from the USA) of a general population sample of cocaine-dependent people found that 39% had remitted four years after initially surveyed. For cannabis, the estimate was 17% per annum based on general population surveys and assuming people not followed up were still dependent.

In accordance with the featured article, such figures imply that within 10 years most dependent users of these drugs will no longer be dependent and may have entirely ceased use.

Racial differences reflect socioeconomic status

An analysis of data from the NESARC survey showed that taking alcohol and other drugs together, the longer dependence careers of black versus white Americans was associated with their having less social and socioeconomic resources, signified by fewer being married and fewer having completed their schooling. Once these were taken in to account, racial differences were no longer significant. The implication is that it is not race as such which makes the difference, but the position black people tend to occupy in US society. Given the same disadvantages, white Americans has dependence careers just as extended as black Americans.

Diagnostic system affects remission rate

Much in this analysis depends on the definitions used in the survey. Specifically, the probability of remission equates to the probability that someone will for at least the past 12 months have dropped below experiencing three or more dependence symptoms together in respect of the same drug. From the same survey, it is known for alcohol that many will still be consuming heavily, experiencing symptoms of dependence such as withdrawal and compulsive use, and suffering poor physical and mental health (1 2). They may be remitted from their dependence, but not according to most understandings, 'recovered'.

Had the line been drawn elsewhere, the chances of remission might have been substantially lower – for example, as commonly in NESARC reports on drinking (1 2 3 4), if remission had been defined as non-problem moderate use or abstinence.

The latest version of the DSM manual (DSM-5) softens this binary system by diagnosing a substance use disorder when at least two symptoms are present in the same 12 months, and rating this as moderate if there were two or three, severe if four or more. 'Abuse' and 'dependence' are now subsumed within this continuum. The change seems likely to bring many more less severely affected people under the same substance use disorder umbrella as the three-symptom population investigated by the featured analysis. Their remission rates too may differ.

It is also theoretically possible that 'remission' may partly reflect the lack of noticeable change or struggle as with the years dependence becomes more deeply embedded and dominant in one's life, and the change processes probed by some diagnostic questions cease to be live issues – not a sign of recovery, but of the lack such a prospect and the narrowing of life to substance use. For example, having plateaued in their use levels, long-term dependent users may no longer (or not for the past 12 months) have found themselves needing to take more of the drug to feel the desired effects, or taking more than they intended. Perhaps too in the past they had tried unsuccessfully to stop using, or had at least persistently wanted to, but now no longer tried or even wanted to. Ensuring a steady supply of drink or drugs they made no attempt to interrupt would minimise experience of withdrawal. They may also have no important interests and activities left to sacrifice to their dependence – all among the symptoms used to diagnose dependence.

Some findings from NESARC are consistent with this possibility. In the three years between the first interview and the re-interview, the alcohol dependence symptoms which fell away most often and most consistently across different types of drinkers were "taking alcohol often in larger amounts or over a longer period than was intended", "a persistent desire or unsuccessful efforts to cut down or control use", and withdrawal.

Similarly, young adult dependent drinkers tend not to endorse the dependence symptom relating to inability to stop drinking or cut back, presumably because they have yet to try.

Related analyses

This data from the featured report has been reanalysed to show that for each of these drugs, the probability that someone would have ceased being dependent remained the same no matter how long ago they had first become dependent. For the author this falsified theories which assume that the longer it lasts, the deeper dependence becomes embedded in neural circuits or lifestyles.

The survey on which the featured article was based and other US national surveys were among those included in a synthesis of hundreds of studies of remission and recovery from substance use problems. This too concluded that "Recovery is not an aberration achieved by a small and morally enlightened minority of addicted people. If there is a natural developmental momentum within the course of [these] problems, it is toward remission and recovery".

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