ash fact sheet
action on smoking and health

Smoking and Mental Health

Introduction

This fact sheet examines the links between smoking and mental health, rates of smoking among people with different mental health conditions, and interventions to help these people to stop smoking.

Smoking rates amongst people with a mental health condition are significantly higher than in the general population and there is a strong association between smoking and mental health conditions.[1] This association becomes stronger relative to the severity of the mental condition, with the highest levels of smoking found in psychiatric in-patients.[1 2] It is estimated that of the 10 million smokers in the UK about 3 million have a mental health condition.[1]

It is not clear whether smoking is the cause or effect of mental conditions. However, some researchers believe that smoking could act as a trigger for mental ill-health.[3]

As a result of high smoking rates, people with a mental health condition also have high mortality rates compared to the general population. Therefore quitting smoking is particularly important for this group since smoking is the single largest contributor to their 10-20 year reduced life expectancy.[4]

What is a mental health condition?

Mental health conditions comprise a broad range of psychological conditions, with varying symptoms, characterised by a combination of abnormal thoughts, emotions, behaviour and relationships with others.[5] As mental conditions are often defined as much by the severity of their symptoms as by the occurrence of specific symptoms, diagnosis frequently relies on an assessment of the impact of symptoms on functioning.[1]

The two principal diagnostic classifications used by mental health professionals are the World Health Organisation's International Classification of Diseases (ICD-10)[6] and the Diagnostic and Statistical Manual of Mental Disorders (DSM-5) [7] published by the American Psychiatric Association, both of which can be viewed on their respective websites.

A simpler definition of a mental health condition is provided by the International Society for Psychological and Social Approaches to Psychosis, that is, *"a significant change in a person's thinking, feelings or behaviour. The changes need to be bad enough to affect how the person functions or to cause distress to them or other people"*.[8]

Smoking trends

Smoking prevalence amongst people with a mental health condition is substantially higher than in the general population. Since the mid 1990's, smoking in the general population has fallen from around 27% to 19% by 2014.[9] By contrast, smoking rates among people with a mental health condition have not fallen, with estimates putting the figure at around 40% throughout the

past 20 years.[10]

Mental health conditions vary but there is evidence that smoking prevalence is higher across a range of conditions and that smoking rates increase with the severity of the illness. A Public Health England and NHS England survey revealed that 33% of people with a mental health condition smoke compared to 18.7% of people in the general population.[11] A similar ratio can be seen in the USA where data from the 2009-2011 National Survey on Drug Use and Health found smoking prevalence among people with any mental condition was 36.1% compared to 21.4% among people with no mental condition.[12] In addition, people with mental health conditions smoke significantly more, have increased levels of nicotine dependency and are therefore at even greater risk of smoking-related harm.[1]

The 2014 Adult Psychiatric Morbidity Survey (APMS) found a strong association betwen smoking and having a common mental health disorder (CMD), with those smoking 15 or more cigarettes a day more likely to have a CMD than those smoking fewer cigarettes or non-smokers.[13]

CMD in past week by cigarette consumption (All adults, 2014)

	Smoking status			
	Non-smoker	**Ex-smoker**	**Smokes 1-14 a day**	**Smokes 15 or more a day**
	%	%	%	%
Generalised anxiety disorder	4.6	4.9	9.3	13.8
Depressive episode	2.4	2.6	5.0	9.9
Phobias	1.6	1.8	4.4	6.7
Obsessive compulsory disorder	0.8	1.0	2.5	3.7
Panic disorder	0.6	0.6	0.6	0.7
CMD - (not otherwise specified) previously known as 'mixed anxiety/depression'	6.8	6.8	11.2	12.8
Any CMD	14.2	14.7	24.8	33.2

Why are there high smoking rates amongst those with a mental health condition?

Tobacco contains nicotine, a highly addictive chemical which is quickly absorbed into the bloodstream. Nicotine in turn stimulates dopamine production, a chemical associated with pleasurable feelings.[14 15] Smokers quickly develop regular smoking patterns which ensure release of a steady stream of dopamine. When the nicotine content in their blood drops below a certain level, smokers begin to crave a cigarette. This craving causes a feeling of 'stress' until the craving is relieved. The relief felt when this craving is finally satisfied is the feeling that smokers commonly mistake as 'relaxing'. Eventually, smokers need increasing levels of nicotine to feel 'normal'.[16] See also: ASH Fact Sheet: Nicotine and Addiction

For smokers with a mental condition, the association between smoking and feeling relaxed is more pronounced.[17 18] It is commonly believed that people with a mental condition use cigarettes to self-medicate.[19] However, the relief from nicotine withdrawal is only temporary and in the long run continued smoking can exacerbate problems.[20 21] Smokers with a mental condition are more heavily addicted to smoking; and the higher the number of cigarettes smoked per day, the greater the likelihood of developing a mental condition. The more severe the mental condition, the more likely a person is to be a smoker.[1 22]

There is some evidence that smoking is associated with first-ever incidence of a mental condition. A population-level study found that people who smoked but had no history of mental condition had an increased risk of developing one.[23] Conversely, mental conditions such as anxiety and depression may be a factor in smoking initiation although there are inconsistencies in the evidence.[24] A systematic review found that daily tobacco use was associated with increased risk of psychosis and an earlier age at onset of psychotic illness.[25] However the study was unable to determine a causal link.

Other possible explanations for the particularly high rates of smoking amongst those with a mental condition include a common genetic vulnerability;[1] a greater susceptibility to addiction because of a greater subjective experience of reward or pleasure; [26] that tobacco helps relieve some of the symptoms related to a behavioural disorder [16] or that people with a mental condition are less susceptible to anti-smoking messages.[2] Cigarette smoking may be an attempt to self-medicate symptoms of depression, anxiety, boredom or loneliness.[18] Another possible explanation for continuing to smoke is an increase in withdrawal symptoms.[3 16]

Consequence of tobaco use

People with mental health conditions die on average 10-20 years earlier than the general population.[27 28] It is now clear that this is not due to increased suicide rates but as a result of a number of socio-economic and health care factors. Tobacco use is the single largest contributor to reduced life expectancy.[1] The rates of cancer, heart disease and respiratory diseases among individuals with schizophrenia, who have the highest rates of smoking of any group, are up to double those of age-matched controls.[3]

Tobacco interacts with some psychiatric medication making it less effective, resulting in increased dosages and more side effects associated with these drugs.

Given that half of all long-term smokers will die of a smoking related illness,[29] it is unsurprising that there are high levels of smoking-related mortality amongst those with a mental condition.[16]

Smoking and stress

Cigarette smokers often report that smoking helps to relieve feelings of anxiety and stress. The high smoking prevalence among people facing social and economic deprivation suggests that smoking may be used as a self-medicating method of coping with stress.[30] However, instead of helping people relax, smoking actually increases anxiety and tension. The feeling of relaxation is temporary and soon gives way to withdrawal symptoms and increased cravings. So, although smoking reduces withdrawal symptoms, which are similar to the feelings of anxiety, it does not reduce anxiety or deal with the underlying causes.[31] While the self-medication theory is widely believed by many people working in mental health, smoking is not, in fact, an effective means of managing a mental health problem.[32]

Depression

Tobacco use is associated with increased risk of major depression.[33 34] Smoking rates among adults with depression are twice as high as among adults without depression.[35]

Levels of dopamine are often low in people with depression, and these individuals may then use cigarettes as a way of temporarily increasing their dopamine supply (to increase pleasurable feelings).[36] However, smoking adversely affects the brain's own mechanism for making dopamine so that, in the long term, the supply decreases, which in turn prompts people to smoke more.[16]

Most people start to smoke before they show signs of depression and there is some evidence to indicate that smoking may be a causal factor in depression or that depression encourages

people to start smoking.[37] Numerous studies have found that smoking significantly increases the risk of major depression.[1 30]

The relationship between smoking and depression may be the result of a genetic predisposition.[1 38] Other potential shared causes are factors in the social environment, genetics, personality (for example, low self-esteem), and coping styles.[39] Nicotine may act as an anti-depressant in some smokers and could therefore be viewed as a form of self-medication.[40]

However, a meta-analysis of published studies found no differences in either short-term (≤ 3 months) or long-term abstinence rates (≥ 6 months) between smokers with or without a history of depression.[41]

Bipolar disorder

Bipolar disorder, previously known as manic depression is characterised by shifts in a person's mood, energy and ability to function. An association between smoking and bipolar disorder has not been firmly established although smoking prevalence rates among people with bipolar are significantly higher than in the general population.[1 42 43]

One study found that among patients treated for bipolar disorder, smokers were more likely to have an earlier onset of the disorder, greater severity of symptoms, a history of suicide attempt, and co-morbid anxiety or substance use disorder.[44] The association with suicide ideation was confirmed in a separate study.[45]

ADHD

The link between Attention Deficit Hyperactivity Disorder (ADHD) and smoking is well established [46 47] with both children and adults with ADHD significantly more likely to smoke than those without.[48] Also, there is strong evidence to show that maternal smoking during pregnancy is a risk factor for ADHD in children. [49 50]

Studies suggest that people with ADHD use nicotine to improve attention and cognitive performance.[51 52 53] Laboratory studies have also shown that nicotine reduces the symptoms of ADHD and, in fact, acts in a similar way to medication used to treat ADHD which may explain why people with ADHD use tobacco to self-medicate.[1]

Teenagers with untreated ADHD are more likely to initiate smoking and to smoke more regularly.[54 55] Smokers with ADHD also appear to be at greater risk of severe tobacco dependence.[56] In addition, smokers with ADHD are more likely to develop drug and alcohol disorders.[57]

Schizophrenia

Smoking rates among people with schizophrenia are significantly higher than in the general population, with prevalence estimated to be between 58% and 88%.[58] One possible explanation is that people with schizophrenia use smoking to manage some of the symptoms associated with their illness and that tobacco lessens some of the side effects of their medication.[59 60 61] Research has also shown that nicotine may improve attention and short-term memory in people with schizophrenia. [61 62] It may also be that nicotine stimulates the subcortical reward system and the prefrontal cortex, both of which malfunction in people with schizophrenia.[63]

The metabolism of psychotropic drugs can be increased in cigarette smokers.[1] As a result, smokers frequently need higher doses of this type of medication to have the same therapeutic effect. A smoker with schizophrenia on Clozapine, for example, should have medication cut by 25% in the first week following a quit attempt.[64]

Studies have shown that stopping smoking will not lead to an exacerbation of schizophrenia symptoms [65] although there is some evidence to suggest that people with this disorder may experience more severe withdrawal symptoms during the first week of a quit attempt than other would-be quitters.[66] A review of methods to assist people with schizophrenia to quit smoking found that the use of varenicline or bupropion, with or without nicotine replacement therapy in combination with behavioural treatment is effective for these smokers.[67]

Alzheimer's Disease and Demetia

Alzheimer's Disease (AD) is a common form of senile dementia, the other being vascular dementia. There is strong evidence that smoking increases the risk of Alzheimer's Disease and vascular dementia. Overall, smokers have a 50% greater chance of developing dementia than people who have never smoked.[68]

Independent meta analyses [69 70] and one large scale cohort study[71] confirm that current smoking is a risk factor for dementia. For further information see ASH fact sheet on Smoking and Dementia

Post-Traumatic Stress Disorder

There is a clear link between Post-Traumatic Stress Disorder (PTSD) and smoking.[72 73] A 2007 review found smoking rates were high among clinical samples with PTSD (40%–86%) as well as nonclinical populations with PTSD (34%–61%).[74] Studies of war veterans in the United States with PTSD have found smoking prevalence of between 53% and 63%.

Among US veterans of the Vietnam war with PTSD 48% were classified as heavy smokers, compared to 28% of veterans without PTSD.[75] Veterans with PTSD who smoke also reported higher levels of PTSD symptoms.[76] These smokers are also significantly more likely to be heavy smokers and to have significantly higher levels of nicotine craving[73] and lower quit rates.[74]

Impact of smokefree policies

Since July 2008, mental health facilities in England have been required by law to be smokefree indoors. Since the introduction of the law, an increasing number of mental health facilities have offered stop smoking support to patients who express an interest in quitting.[18] The National Institute for Health and Care Excellence (NICE) has also issued guidance on establishing smokefree policies and supporting patients to quit in mental health care settings.[77]

Prior to the introduction of the law, a large survey of NHS staff found that one third of psychiatric staff disagreed with smokefree legislation compared to only one in ten of general staff.[78] A survey of mental health units in England in January 2007 found that the vast majority (91%) believed mental health premises faced particular challenges due to the high smoking prevalence among patients, associated safety risks, and potential interactions with anti-psychotic medication.[79]

However, despite the challenges, the smokefree policy introduction has been rated positive overall. Advantages cited include: reduced exposure of patients and staff to secondhand smoke, an enhancement in patients' motivation to stop smoking, better sleeping patterns among patients, and the conversion of former smoking rooms into new recreational spaces.[79]

An analysis of one medium secure unit's experience of implementing a smokefree policy found no significant difficulties and that widely-anticipated problems did not materialise.[80] A further positive outcome is the potential to reduce the risk of self-harm by patients who no longer have access to cigarette lighters or other smokers' materials.[81]

Smokefree policies are also likely to reduce running costs. One study estimated the cost of facilitating smoking in four mental health wards as over £130,000 in six months.[82]

Societal costs of smoking and mental health

In addition to the health impact of smoking, there are considerable economic costs arising from smoking in people with mental health conditions. The NHS spends approximately £720m per year in primary and secondary care treating smoking-related disease in people with mental health conditions.[1] These costs arise from an annual estimated 2.6 million avoidable hospital admissions, 3.1 million GP consultations and 18.8 million prescriptions. The majority of these service costs arise from people diagnosed with anxiety and/or depression.

A separate study which estimated the economic cost of smoking in people with mental health conditions found that it amounted to £2.34 billion in 2009/10 in the UK, of which, about £719 million (31% of the total cost) was spent on treating diseases caused by smoking. Productivity losses due to smoking-related diseases were about £823 million (35%) for work-related absenteeism and £797 million (34%) was associated with premature mortality.[83]

Smoking cessation

Motivation to quit

People with a mental health disorder who smoke are more likely than members of the general population to anticipate difficulty in quitting and are less likely to succeed.[1] However, smokers with mental illness are frequently motivated to quit and are generally able to do so provided they are given evidence-based support.[84 85 86 87]

The 2010 Health Survey for England found 66% of smokers with a mental illness would like to quit, with the figure rising to 69% of smokers taking a psychoactive medication.

Benefits of quitting

Stopping smoking improves both physical and mental health even in the short term and reduces the risk of premature death.[4]

- A systematic review of studies measuring changes in mental health following smoking cessation found that quitting smoking was associated with reduced depression, anxiety and stress, and improved positive mood and quality of life, compared with continuing to smoke.[88]

- In addition to the improvements in mental health, people with mental health disorders who successfully quit smoking will experience benefits to their physical health by reducing the risk of respiratory and vascular disease.

- Nicotine increases the metabolism of drugs so when a person stops smoking their medication can often be reduced.[89]

- For those on low income, quitting smoking can relieve financial stress since people with mental disorders spend proportionately more of their income on tobacco.

Effective Interventions

- A review of smoking cessation interventions aimed at smokers with a severe mental illness found that these programmes enjoy moderate success. Stop smoking support offered to smokers with a mental illness was as successful as that offered to smokers in the general population and cessation did not lead to worsened mental state.[90] Other studies have also found that quitting smoking did not lead to a deterioration of the person's mental health[91] and that, following a successful quit attempt, lower levels of anxiety were reported amongst former smokers.[92] This contradicts the belief that cessation will lead to an exacerbation of mental health symptoms.

- A systematic review of the use of medicines to help people with serious mental illness to stop smoking found that bupropion and varenicline are effective and tolerable for smoking cessation. Furthermore, the authors concluded that these effective smoking cessation therapies should be made more widely available than is currently practised.[93]

- A large study compared the relative safety and efficacy of varenicline and bupropion with nicotine patch and placebo in smokers with and without psychiatric disorders. The study did not show any significant increase in neuropsychiatric adverse events attributable to varenicline or bupropion relative to nicotine patch or placebo.[94]

- Higher quit rates may occur if treatments are adapted to the needs of patients with mental health conditions.[95] For example, the Smoking Cessation Intervention for Severe Mental Ill Health Trial (SCIMITAR) is a pilot randomised controlled trial of a smoking cessation strategy designed specifically for people with severe mental ill health. At the end of the trial, smoking cessation was highest among individuals who received the bespoke intervention (36% vs. 23%). [96]

Attitudes of mental health staff

Despite overwhelming evidence about the dangers of tobacco use, many mental health professionals appear reluctant to engage with patients about smoking and/or have low expectations of patients' motivation or ability to stop smoking.[97 98 99] This lack of ambition among the workforce is likely to have an impact on service users as advice from health professionals has been shown to be an important driver in quit attempts among all smokers. [98]

A lack of knowledge among mental health staff about tobacco dependence, treatment and its interaction with psychotic medication may limit the support given to patients to quit smoking.[100] A survey of clinical staff in one NHS mental health trust found that 41% of doctors were unaware that smoking can decrease blood levels of antipsychotic drugs, and 36% were unaware that stopping smoking could reduce the dose needed. Staff who smoked were more likely to have reservations about the importance of the smokefree policy and the treatment of nicotine dependence among patients.[101] However, there is some evidence that attitudes are beginning to change. One study found that 89% of mental health staff thought that addressing patients' smoking would not have an adverse effect on the therapeutic relationship and 81% did not believe quitting smoking would have a negative impact on their recovery.[102]

Policy recomendations

A report published by ASH,[103] endorsed by 27 health organisations, sets out areas for urgent action to cut smoking rates among people with mental health conditions. These include:

- National targets and leadership to drive action across the country
- Strong focus on the skills and training of the workforce
- Availability of evidence-based services alongside peer support for all those who need them
- Better access to the medications that will help people to quit

- Improved understanding that electronic cigarettes provide a less harmful alternative to smoking
- Moving to smokefree mental health settings alongside provision of the right support to smokers

Tobacco industry marketing

The tobacco industry has a well-documented history of marketing to vulnerable groups and there is evidence to show that it has specifically targeted people with mental health conditions.[104] In the United States there was a long standing practice of providing cigarettes to psychiatric hospitals, supporting efforts to block hospital smoking bans and engaging in a variety of activities that slowed development of treatment for nicotine dependence treatment for this population group. [16 105]

A study of tobacco industry documents found industry-funded research supporting the idea that individuals with schizophrenia were less susceptible to the harms of tobacco and that they needed tobacco as self-medication.[105] The idea that tobacco is a useful tool for self-medicating has been widely supported by tobacco companies.[17]

Resources

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