

Fact sheet No. 12: Smoking and Mental Health

August 2019

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 among 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. This association becomes stronger relative to the severity of the mental health condition, with the highest levels of smoking found in psychiatric in-patients.^{1,2} It is estimated that around 30% of smokers in the UK have a mental health condition, and more than 40% of adults with a serious mental illness smoke.^{1,3}

It is not clear whether smoking is the cause or effect of mental health conditions. However, there is some evidence that smoking could act as a trigger for mental ill-health.⁴

Partly a result of high smoking rates, people with a mental health condition 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.^{5,6,7}

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.⁸ As mental health 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)⁷ and the Diagnostic and Statistical Manual of Mental Disorders (DSM-5) published by the American Psychiatric Association.⁹ Mind, a leading mental health charity, also provides shorter explanations of a variety of mental health conditions on their website.¹⁰

SMOKING TRENDS

Smoking prevalence among people with a mental health condition is substantially higher than in the general population. Since the mid-1990s, smoking in the general population in England has fallen from around 27% to around 14.9% by 2017.^{11,12} In contrast, the latest Public Health England data shows that 40.5% of adults with a serious mental health illness (SMI) smoke,¹³ a figure which has remained steady over the past 20 years.¹⁴

This disparity is also apparent in the USA where data from the 2009-2011 National Survey on Drug Use and Health found smoking prevalence among people with any mental health condition was 36.1% compared to 21.4% among people with no mental health condition.¹⁵

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. 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

WHY ARE THERE HIGH SMOKING RATES AMONGST THOSE WITH A MENTAL HEALTH CONDITION?

Tobacco contains nicotine, an addictive chemical which is quickly absorbed into the bloodstream in its smoked form. Nicotine in turn stimulates dopamine production, a chemical associated with pleasurable feelings.^{16 17} 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 describe as 'relaxing'. Eventually, smokers need increasing levels of nicotine to feel 'normal'. For more information, see: [ASH Fact Sheet: Nicotine and Addiction](#).

For smokers with a mental health condition, the association between smoking and feeling relaxed is more pronounced.^{18 19} It is commonly believed that people with a mental health condition use tobacco to self-medicate.²⁰ However, the relief from nicotine withdrawal is only temporary and in the long run continued smoking can exacerbate problems.^{21 22} Smokers with a mental health condition tend to be more heavily addicted to smoking; and the higher the number of cigarettes smoked per day, the greater the likelihood of developing a mental health condition. The more severe the mental health condition, the more likely a person is to be a smoker.^{1 23}

There is some evidence that smoking is associated with first-ever incidence of a mental health condition. A population-level study found that people who smoked but had no history of having a mental health condition had an increased risk of developing one.²⁴ Conversely, mental health conditions such as anxiety and depression may be a factor in smoking initiation, although there are inconsistencies in the evidence.²⁵ A systematic review found that daily tobacco use was associated with increased risk of psychosis and an earlier age at onset of psychotic illness.²⁶ 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 health condition include genetic vulnerability; a greater susceptibility to addiction because of a greater subjective experience of reward or pleasure;²⁷ that tobacco helps relieve some of the symptoms related to a behavioural disorder¹⁷ or that people with a mental health condition are less susceptible to anti-smoking messages.² Cigarette smoking may also be an attempt to self-medicate symptoms of depression, anxiety, boredom or loneliness.¹⁸

CONSEQUENCE OF TOBACCO USE

People with mental health conditions die on average 10-20 years earlier than the general population.^{4 5 6} This is not due to increased suicide rates but a result of a number of socio-economic and healthcare factors. Smoking is the single largest contributor to reduced life expectancy.¹ The rates of cancer, heart disease and respiratory diseases among people with schizophrenia, who have the highest rates of smoking of any group, are up to double those of age-matched controls.³

Tobacco smoke interacts with some psychiatric medication making it less effective, resulting in increased dosages and more side effects associated with these drugs. As such, smokers on these medications who reduce their tobacco consumption can expect to be prescribed lower doses.

Given that half of all long-term smokers will die of a smoking related illness,²⁸ it is unsurprising that there are high levels of smoking-related mortality amongst those with a mental health condition.¹⁷

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.²⁹

However, 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.³⁰ Smoking is not, in fact, an effective means of managing a mental health condition.³¹

DEPRESSION

Smoking is associated with increased risk of major depression.^{32 33} Smoking rates among adults with depression are twice as high as among adults without depression.

Levels of dopamine are often low in people with depression, and these individuals may use cigarettes as a way of temporarily increasing their dopamine supply (to increase pleasurable feelings).³⁴ 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.¹⁷

Most people start to smoke before they show signs of depression and there is some evidence to indicate that, aside from depression encouraging smoking initiation, smoking may be a causal factor in depression.³⁵ Studies have found that smoking significantly increases the risk of major depression.^{1 28}

The relationship between smoking and depression may be the result of a genetic predisposition.^{1 36} Other potential causes for higher rates of smoking in people with depression include difficulties and stress within the social environment.³⁴ Nicotine can also act in a similar manner to anti-depressants and can therefore be seen as a way to self-medicate.³⁷

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 disorder are significantly higher than in the general population.^{1 38 39}

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 attempts, and co-morbid anxiety or substance use disorder.⁴⁰ The association with suicide ideation was found in a separate study.⁴¹

ADHD

The link between Attention Deficit Hyperactivity Disorder (ADHD) and smoking is well established^{42 43} with both children and adults with ADHD significantly more likely to smoke than those without. There is also strong evidence to show that maternal smoking during pregnancy is a risk factor for ADHD in children.^{44 45}

Studies suggest that people with ADHD use nicotine to improve attention and cognitive performance.^{46 47 48} Laboratory studies have also shown that nicotine can reduce the symptoms of ADHD and act 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.^{49 50} Smokers with ADHD also appear to be at greater risk of severe tobacco dependence.⁵¹ In addition, smokers with ADHD are more likely to develop drug and alcohol disorders.⁵²

SCHIZOPHRENIA

Smoking rates among people with schizophrenia are significantly higher than in the general population, with one meta-analysis of studies from 20 countries showing an average prevalence of 62%.⁵³ Research has shown that nicotine may improve attention and short-term memory in people with schizophrenia.^{54 55} It may also be that nicotine stimulates the subcortical reward system and the prefrontal cortex both of which malfunction in people with schizophrenia.⁵⁶

The metabolism of psychotropic drugs can be increased in cigarette smokers. 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 (an antipsychotic medication used to treat schizophrenia), for example, should have medication cut by 25% in the first week following a quit attempt.⁵⁷

Studies have shown that stopping smoking will not lead to an exacerbation of schizophrenia symptoms³¹ 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.⁵⁸ 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.⁵⁹

POST-TRAUMATIC STRESS DISORDER

There is a clear link between Post-Traumatic Stress Disorder (PTSD) and smoking.^{60 61} A 2007 review found smoking rates were high among clinical samples with PTSD (40%–86%) as well as non-clinical populations with PTSD (34%–61%).⁶²

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.⁶³ Veterans with PTSD who smoke also reported higher levels of PTSD symptoms.⁶⁴ These smokers are also significantly more likely to have much higher levels of nicotine craving⁶⁴ as well as lower quit rates.⁶⁵

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) also issued guidance in 2013 on establishing smokefree policies and supporting patients to quit in mental health care settings.⁶⁵

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 general staff.⁶⁶ 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.⁶⁷

However, despite the challenges, the smokefree policy introduction has been rated positively overall. A 2013 study on professionals' perspectives on smokefree policy implementation found that 94% reported a range of positive outcomes.⁶⁸ Other cited advantages included: reduced exposure of patients and staff to second-hand smoke, an enhancement in patients' motivation to stop smoking, better sleeping patterns among patients, the conversion of former smoking rooms into new recreational spaces, and reducing the risk of patients self-harming with cigarette lighters.⁷⁰ A 2018 study evaluating the experience of 12 mental health wards before and after implementing NICE smokefree guidance found: a huge increase in patients being offered smoking cessation advice, a decrease in challenging behaviour incidents, as well as patients reporting positive changes in their smoking behaviour and motivation to maintain change after discharge.⁶⁹

Smokefree policies are also likely to reduce running costs. One study found that staff across four mental health wards spent over 6000 hours facilitating smoking breaks over a six-month period, representing an annual cost of over £130,000.⁷⁰

SOCIETAL COSTS OF SMOKING & 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 annum in primary and secondary care treating smoking-related disease in people with mental health conditions. These costs arise

from an annual estimated 2.6 million avoidable hospital admissions, 3.1 million GP consultations and 18.8 million prescriptions. Most of these service costs arise from people diagnosed with anxiety and/or depression.¹

A separate study which also accounted for lost productivity due to smoking-attributable morbidity and mortality found a further cost of £1.62 billion in 2009/10. With the direct medical costs of treating smoking-related diseases in people with mental health conditions included, this amounted to a total economic cost of around £2.3 billion.⁷¹

SMOKING CESSATION

MOTIVATION TO QUIT

People with a mental health condition 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 health conditions are frequently motivated to quit and are generally able to do so provided they are given evidence-based support.^{72 73 74 75}

BENEFITS OF QUITTING

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

- 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.⁷⁶
- In addition to the improvements in mental health, people with mental health conditions who successfully quit smoking will experience benefits to their physical health by reducing the risk of respiratory and vascular disease.
- Smoking increases the metabolism of drugs. So, when a person stops smoking, their medication dosage can often be reduced.⁷⁷
- For those on low income, quitting smoking can relieve financial stress since people with mental health conditions, on average, spend proportionately more of their income on tobacco.

EFFECTIVE INTERVENTIONS

- A review of smoking cessation interventions aimed at smokers with a severe mental health condition found that these programmes enjoy moderate success. Stop smoking support offered to smokers with a mental health condition was just as successful as that offered to smokers in the general population, and cessation did not lead to a worsened mental state.⁷⁸ Other studies have also found that quitting smoking does not lead to deteriorated mental health⁷⁹ and that, following a successful quit attempt, lower levels of anxiety were reported amongst former smokers.⁸⁰ This contradicts the view 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 health conditions 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 they currently are.⁸¹
- 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.⁸²

- Higher quit rates may occur if treatments are adapted to the needs of patients with mental health conditions. 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%).⁸³

ATTITUDES OF MENTAL HEALTH STAFF

Despite overwhelming evidence about the dangers of tobacco use, many mental health professionals have reported feeling reluctant to engage with patients about smoking and/or having low expectations of patients' motivation or ability to stop smoking.^{84 85 86} This is likely to have a direct impact on service users, as advice from health professionals has been shown to be an important driver in quit attempts among all smokers.⁸⁸ However, more recently there is some evidence that attitudes are beginning to change. A 2011 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 patients' recovery.⁸⁷ Staff who smoked were more likely to have reservations about the importance of the smokefree policy and the treatment of nicotine dependence among patients.⁸⁸

A lack of knowledge among mental health staff about tobacco dependence, treatment and its interaction with psychotic medication limits the support given to patients to quit smoking.⁸⁹ 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.⁹²

In a 2016 survey of stop smoking practitioners, only 11.6% said that their service had designated funding for smokers with mental health conditions, but it was found that practitioners from services that had a dedicated mental health lead were more confident in supporting smokers with different mental health conditions and using different pharmacotherapies. Furthermore, over 80% of practitioners were interested in training on smoking cessation effects on psychiatric medication, and tailoring stop-smoking support for clients with mental health conditions.⁹⁰

POLICY RECOMMENDATIONS

A report published by ASH, *The Stolen Years*, 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. One analysis of American tobacco industry documents dated from 1977 to 2001 found that there was an established practice of

targeting psychiatric hospitals and mental health associations with cigarette promotions and giveaways.⁹¹ Another study of records dating from 1955 to 2004 found that the tobacco industry directly 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.⁹²

ADDITIONAL RESOURCES

- [The Stolen Years. The mental health and smoking action report.](#) ASH, 2016.
- [A Change in the Air.](#) ASH, 2018
- [Smoking and mental health. A joint report by the Royal College of Physicians and the Royal College of Psychiatrists.](#) London, RCP, 2013
- [The Five Year Forward View Mental Health. A report from the independent Mental Health Taskforce to the NHS in England.](#) 2016
- [\(NICE PH48\) Smoking: acute, maternity and mental health services.](#) NICE, 2013
- [Brief guide: Smokefree policies in mental health inpatient services.](#) CQC, 2018
- [No health without mental health. A cross-government mental health outcomes strategy for people of all ages.](#) HM Government, 2011
- [Smoking and mental health.](#) Mental Health Network NHS Confederation briefing, 2013.
- [Smoking cessation in secure mental health settings: guidance for commissioners.](#) Public Health England. Last updated 2018
- [Smoking cessation in secondary care: mental health settings.](#) Public Health England, 2015

REFERENCES

Links last accessed 6 August 2019

1. The Royal College of Physicians. [Smoking and mental health](#). London, RCP, March 2013
2. Jochelson J, Majrowski B. [Clearing the Air. Debating Smoke-Free Policies in Psychiatric Units.](#) King's Fund. 2007
3. NHS Digital. 'Smoking rates in people with serious mental illness'. 2016. Available at [Public Health England Tobacco Control Profiles](#).
4. West, R, Jarvis, M. Tobacco smoking and mental disorder. *Italian Journal of Psychiatry & Behavioural Science* 2005; 15: 10-17
5. Royal College of Psychiatrists. [Primary Care Guidance on Smoking and Mental Health Disorders](#). 2014.
6. Chesney E, Goodwin GM, Fazel S. [Risks of all-cause and suicide mortality in mental disorders: a meta-review.](#) *World Psychiatry* 2014; 13(2): 153–160
7. Chang CK, et al. [Life Expectancy at Birth for People with Serious Mental Illness and Other Major Disorders from a Secondary Mental Health Care Case Register in London.](#) *PLoS One*. 2011; 6(5): e19590
8. World Health Organization. [International Statistical Classification of Diseases and Related Health Problems](#) 10th Revision (ICD-10) Version for 2010. Chapter 5: Mental and behavioural disorders. F00-F99.
9. American Psychiatric Association. *Diagnostic and Statistical Manual of Mental Disorders, Fourth Edition (DSM-IV)*, 2000
10. Mind. [Types of mental health problems.](#)
11. NHS Digital. [Health Survey for England 2017 \[NS\]](#). 2018.
12. Office for National Statistics. [Adult smoking habits in the UK: 2017.](#)
13. Public Health England. [Public Health Profiles](#).
14. Szatkowski L, McNeill A. [Diverging trends in smoking behaviours according to mental health status.](#) *Nicotine & Tobacco Research* 2015; 3: 356-60
15. Centers for Disease Control and Prevention (CDC). [Vital signs: current cigarette smoking among adults aged ≥18 years with mental illness - United States, 2009-2011.](#) *MMWR Morb Mortal Wkly Rep*. 2013; 62(5): 81-7
16. Novak G, Seeman P, Le Foll B. [Exposure to nicotine produces an increase in dopamine D2\(High\) receptors: a possible mechanism for dopamine hypersensitivity.](#) *International Journal of Neuroscience* 2010; 120 (11): 691-7
17. Pomerleau OF, Pomerleau CS. [Neuroregulators and the reinforcement of smoking: towards a bio-behavioral explanation.](#) *Neurosci Biobehav Rev*. 1984; 8: 503-513
18. Prochaska JJ. [Smoking and Mental Illness: Breaking the Link.](#) *NEJM* 2011; 365:196-8.
19. Ratschen E, Britton J, McNeill A. [The smoking culture in psychiatry: time for change.](#) *The British Journal of Psychiatry* 2011; 198: 6-7.

20. Khantzian EJ. [The self-medication hypothesis of substance use disorders: A reconsideration and recent applications](#). Harv Rev Psychiatry 1997; 4: 231-244.
21. McDermott M et al. [Change in anxiety following successful and unsuccessful attempts at smoking cessation: cohort study](#). The British Journal of Psychiatry Jan 2013; 202 (1): 62-67
22. Taylor et al. [Change in mental health after smoking cessation: systematic review and meta-analysis](#). BMJ 2014; 348: 1151
23. Aguilar MC, et al. [Nicotine dependence and symptoms in schizophrenia. Naturalistic study of complex interactions](#). British Journal of Psychiatry 2005; 186: 215–221.
24. Cuijpers P, et al. [Smoking is associated with first-ever incidence of mental disorders: a prospective population-based study](#). Addiction 2007; 102: 1303–1309
25. Moylan S et al. [Cigarette smoking, nicotine dependence and anxiety disorders: a systematic review of population-based, epidemiological studies](#). BMC Medicine 2012; 10: 123
26. Gurillo P, et al. [Does tobacco use cause psychosis? Systematic review and meta-analysis](#). Lancet Psychiatry 2015; 2 (8): 718-725
27. Spring S, Pingitore R, McChargue DE. [Reward value of cigarette smoking for comparably heavy smoking schizophrenic, depressed and nonpatient smokers](#). Amer J Psychiatry 2003; 160: 316–322
28. Doll R, Peto R, Boreham J et al. [Mortality in relation to smoking: 50 years' observation on male British doctors](#). BMJ 2004; 328: 1519
29. Williams JM, Ziedonis D. [Addressing tobacco among individuals with a mental illness or an addiction](#). Addict Behav. 2004; 29: 1067-1083
30. Picciotto MR, Brunzell DH, Caldarone BJ. [Effect of nicotine and nicotinic receptors on anxiety and depression](#). Neuroreport 2002; 13: 1097-1106
31. Ziedonis D, et al. [Tobacco use and cessation in psychiatric disorders: National Institute of Mental Health report](#). Nicotine Tob Res 2008; 10: 1691-1715
32. Hamalainen J, et al. [Cigarette smoking, alcohol intoxication and major depressive episode in a representative population sample](#). JECH 2001; 55: 573-76
33. Klungsoyr O, Nygard JF, Sorensen T, Sandanger I. [Cigarette smoking and incidence of first depressive episode: an 11-year, population-based follow-up study](#). Am J Epidemiol. 2006; 163(3): 421-32
34. Mendelsohn C. [Smoking and depression: a review](#). Australian Family Physician 2012; 41(5): 304-307
35. Collingwood J. [Can Smoking Cause Depression?](#) Psych Central. 8 October 2018.
36. Korhonen T, et al. [Smoking behaviour as a predictor of depression among Finnish men and women: a prospective cohort study of adult twins](#). Psychol Med. 2007; 37(5): 705-15.
37. Ratschen E, Britton J, McNeill A. [The smoking culture in psychiatry: time for change](#). The British Journal of Psychiatry 2011; 198(1): 6-7
38. Diaz FJ, et al. [Tobacco smoking behaviours in bipolar disorder: a comparison of the general population, schizophrenia and major depression](#). Bipolar disorders. 2009. 11(2): 154-165
39. Dickerson F et al. [Cigarette Smoking Among Persons With Schizophrenia or Bipolar Disorder in Routine Clinical Settings, 1999–2011](#). Psychiatric Services 2013; 64(1): 44-50
40. Ostacher MJ, et al. [The relationship between smoking and suicidal behaviour, comorbidity, and course of illness in bipolar disorder](#). J Clin Psychiatr 2006; 67(12): 1907-11
41. Ostacher M, et al. [Cigarette smoking is associated with suicidality in bipolar disorder](#). Bipolar Disorders 2009; 11(7): 766-71.
42. Fuemmeler BF, Kollins SH, McClernon FJ. [Attention deficit hyperactivity disorder symptoms predict nicotine dependence and progression to regular smoking from adolescence to young adulthood](#). J Pediatr Psychol 2007; 32(10): 1203-13
43. Wilens TE, et al. [Cigarette smoking associated with attention deficit hyperactivity disorder](#). J Pediatr. 2008; 153(3): 414-19
44. Thapar A, et al. [Maternal smoking during pregnancy and attention deficit hyperactivity disorder symptoms in offspring](#). Am J Psychiatry 2003; 160(11): 1985-89.
45. Langley K, et al. [Maternal and paternal smoking during pregnancy and risk of ADHD symptoms in offspring: testing for intrauterine effects](#). Am. J. Epidemiol. 2012; 176 (3): 261-68
46. Hahn B, Shoaib M, Stoleran IP. [Nicotine-induced enhancement of attention in the five-choice serial reaction time task: the influence of task demands](#). Psychopharmacology 2002; 162(2): 129-37
47. Hahn B, Stoleran IP. [Nicotine-induced attentional enhancement in rats: effects of chronic exposure to nicotine](#). Neuropsychopharmacology 2002; 27(5): 712-22
48. Gehricke JG, et al. [Effects of transdermal nicotine on symptoms, moods, and cardiovascular activity in the everyday lives of smokers and nonsmokers with attention-deficit/hyperactivity disorder](#). Psychol Addict Behav. 2009; 23(4): 644-55
49. Whalen CK, et al. [Is there a link between adolescent cigarette smoking and pharmacotherapy for ADHD?](#) Psychol Addict Behav. 2003; 17(4): 332-35
50. Sibley M. [The role of early childhood ADHD and subsequent CD in the initiation and escalation of adolescent cigarette, alcohol, and marijuana use](#). J Abnorm Psychol. 2014 May; 123(2): 362-74.
51. Wilens TE, et al. [Cigarette smoking associated with attention deficit hyperactivity disorder](#). Journal of Pediatrics. 2008; 153(3): 414-19
52. Biederman J, et al. [Cigarette smoking as a risk factor for other substance misuse: 10 year study of individuals with and without attention-deficit hyperactivity disorder](#). British Journal of Psychiatry 2012; 201(3): 207-214
53. de Leon J and Diaz FJ. [A meta-analysis of worldwide studies demonstrates an association between schizophrenia and tobacco smoking behaviors](#). Schizophrenia Research 2005; 76(2-3): 135-57
54. Levin, ED and Rezvani, AH. [Nicotine treatment for cognitive dysfunction](#). Current Drug Targets. CNS and Neurological Disorders 2002; 1(4): 423-31
55. Depatie L, et al. [Nicotine and behavioral markers of risk for schizophrenia: a double-blind, placebo-controlled, cross-over study](#). Neuropsychopharmacology 2002; 27(6): 1056-70

56. Chambers RA, Krystal JH, Self DW. [A neurobiological basis for substance abuse comorbidity in schizophrenia](#). *Biological Psychiatry* 2001; 50(2): 71–83
57. Desai HD, Seabold J, Jann MW. [Smoking in patients receiving psychotropic medications: a pharmacokinetic perspective](#). *CNS Drugs* 2001; 15(6): 469-94
58. George TP, et al. [Effects of smoking abstinence on visuospatial working memory function in schizophrenia](#). *Neuropsychopharmacology* 2002; 26(1): 75-85
59. Evins A, Cather C. [Effective Cessation Strategies for Smokers with Schizophrenia](#). *Int Rev Neurobiol*. 2015; 124: 133-47
60. Hapke U, et al. [Association of smoking and nicotine dependence with trauma and post traumatic stress disorder in a general population sample](#). *Journal of Nervous and Mental Disease* 2005; 193(12): 943-846.
61. Hertzberg MA, et al. [A preliminary study of bupropion sustained-release for smoking cessation in patients with chronic post-traumatic stress disorder](#). *Journal of Clinical Psychopharmacology* 2001; 21(1): 94-98
62. Fu SS, et al. [Post-traumatic stress disorder and smoking: a systematic review](#). *Nicotine & Tobacco Research* 2007; 9(11): 1071-1084
63. Beckham JC, et al. [Prevalence and correlates of heavy smoking in Vietnam veterans with chronic post traumatic stress disorder](#). *Addictive Behaviours* 1997; 22(5): 637-47
64. Beckham JC, et al. [Smoking in Vietnam combat veterans with post-traumatic stress disorder](#). *Journal of Traumatic Stress* 1995; 8(3): 461-72
65. NICE. [Guidance: Smoking: acute, maternity and mental health services: Public health guideline \[PH48\]](#). November 2013. Accessed 17 December 2018
66. McNally L, et al. [A survey of staff attitudes to smoking-related policy and intervention in psychiatric and general health care settings](#). *J Pub Health* 2006; 28(3): 192-96
67. Ratschen E, Britton J and McNeill A. [Implementation of smoke-free policies in mental health in-patient settings in England](#). *The British Journal of Psychiatry* 2009; 194(6): 547-51
68. Lawn S, Feng Y, Tsourtos G and Campion J. [Mental health professionals' perspectives on the implementation of smoke-free policies in psychiatric units across England](#). *International Journal of Social Psychiatry*; 61(5): 465-74
69. Huddleston L et al. [Complete smokefree policies in mental health inpatient settings: results from a mixed-methods evaluation before and after implementing national guidance](#). *BMC Health Services Research* 2018; 18: 542
70. Sohail H, Huddleston L and Ratschen E. [Preparing for completely smoke-free mental health settings: Findings on patient smoking, resources spent facilitating smoking breaks, and the role of smoking in reported incidents from a large mental health trust in England](#). *Int J Environ Res Public Health*. 2016; 13(3): 256.
71. Wu Q et al. [Economic cost of smoking in people with mental disorders in the UK](#). *Tob Control* 2014; 24(5): 462-68
72. Caosella AM, Ossip-Klein DJ, Owens CA. [Smoking attitudes, beliefs, and readiness to change among acute and long term care inpatients with psychiatric diagnoses](#). *Addictive Behaviors* 1999; 24(3): 331-44
73. Siru R, Hulse GK, Tait RJ. [Assessing motivation to quit smoking in people with mental illness: a review](#). *Addiction* 2009; 104(5): 719-33.
74. Center for Disease Control and Prevention. [Vital Signs: Adult Smoking: Focusing on People with mental Illness](#). February 2013. Accessed on 12 February 2019.
75. Cooper J et al. [Depression motivates quit attempts but predicts relapse: differential findings for gender from the International Tobacco Control Study](#). *Addiction* 2016; 111(6): 1438-47
76. Taylor G et al. [Change in mental health after smoking cessation: systematic review and meta-analysis](#). *BMJ* 2014; 348: g1151
77. Taylor D, Paton C, Kapur S. *Maudsley prescribing guidelines*. 11th Ed. Informa Healthcare, 2012.
78. Banham L, Gilbody S. [Smoking cessation in severe mental illness: what works?](#) *Addiction* 2010; 105 (7): 1176-89.
79. Hall SM, Prochaska JJ. [Treatment of smokers with co-occurring disorders: emphasis on integration in mental health and addiction treatment settings](#). *Annu Rev Clin Psychol* 2009; 5: 409-31
80. McDermott M, et al. [Change in anxiety following successful and unsuccessful attempts at smoking cessation: a cohort study](#). *British Journal of Psychiatry* 2013; 202(1): 62-7
81. Roberts, E., Evins, E., McNeill, A. & Robson, D. (2016) [Efficacy and tolerability of pharmacotherapy for smoking cessation in adults with serious mental illness: a systematic review and network meta analysis](#). *Addiction*; 111(4): 599–612.
82. Anthenelli RM et al. [Neuropsychiatric safety and efficacy of varenicline, bupropion, and nicotine patch in smokers with and without psychiatric disorders \(EAGLES\): a double-blind, randomised placebo-controlled clinical trial](#). *The Lancet* 2016; 387(10037): 2507-20
83. Gilbody S, et al. [Bespoke smoking cessation for people with severe mental ill health \(SCIMITAR\): a pilot randomised controlled trial](#). *The Lancet Psychiatry* 2015; 2(5): 395-402
84. Lawn S, Condon J. [Psychiatric nurses' ethical stance on cigarette smoking by patients: Determinants and dilemmas in their role in supporting cessation](#). *International Journal of Mental Health* 2006; 15(2): 111-18
85. Stead L, et al. [Physician advice for smoking cessation](#). *The Cochrane Collaboration* 2013.
86. Kerr S et al. [Breaking the habit: a qualitative exploration of barriers and facilitators to smoking cessation in people with enduring mental health problems](#). *BMC Public Health* 2013; 13: 221
87. Kulkarni M et al. [A cross-sectional survey of mental health clinicians' knowledge, attitudes and practice relating to tobacco dependence among young people with mental disorders](#). *BMC Health Services Research* 2014; 14: 618
88. Ratschen E et al. [Tobacco dependence, treatment and smoke-free policies: a survey of mental health professionals' knowledge and attitudes](#). *Gen Hosp Psych* 2009; 31(6): 576-82
89. Ratschen E, Britton J, McNeill A. [The smoking culture in psychiatry: time for change](#). *The British Journal of Psychiatry* 2011; 198(1): 6-7
90. Simonavicius E, et al. [Cessation support for smokers with mental health problems: a survey of resources and training needs](#). *Journal of Substance Abuse Treatment* 2017; 80: 37-44