

# *Serious mental illness and smoking cessation*

## *A discussion paper*

### **Abstract**

Smoking rates among individuals with severe mental illness (SMI) are significantly higher than in the general population. Contrary to common perception, individuals with SMI have been shown to be motivated to quit smoking. This paper discusses and synthesises current literature on smoking among individuals with serious mental illness (SMI) and contributes to the debate about the significant role mental health professionals can play in targeting the effective cessation therapies towards smokers with SMI. Serious mental illnesses include Schizophrenia, Paranoid and other psychotic disorders, psychotic depression, Bipolar affective disorder, Major depression.

*Key words: Mental illness, Serious mental illness (SMI), Tobacco dependency, smoking, smoking cessation therapies*

### **Introduction**

This paper summarises and synthesises current literature on reasons for excessive smoking rates in individuals with SMI, smoking cessation interventions and implications for practice are discussed. Smoking cessation interventions receive little attention in mental health settings despite many patients being heavy smokers (Szatkowsk and McNeill, 2015). Individuals with SMI smoke significantly more, have increased levels of nicotine dependency and are therefore at even greater risk of smoking-related harm. Smoking rates among people with SMI are three times higher than the general population (Wardle et al. 2011, Office for National Statistics, 2016). Campion et al. (2008) in their study found that patients suffering from schizophrenia smoke significantly more than smokers with other mental disorders. Similarly, people with SMI living in health and social care institutions usually smoke more than the general population and, a review by Mental Health Foundation (2016) found that 85% of people with SMI lived in hospital and residential dwellings with an average smoking rate of 72% recorded for this group. Similarly, in the United States, a study by Lasser et al. (2010) found excessive smoking rates in people with SMI in residential homes. The scale of this association in the UK tends to rise cumulatively with the severity of mental illness particularly amongst inpatients (Health and Social care Information Centre, 2007).

In the UK data on smoking prevalence among people with mental disorders has mainly come from a series of Adult Psychiatric Morbidity Surveys (APMS) conducted in 1993, 2000, 2007 and recently in 2014 (Jenkins et al. 2009; McManus et al. 2016). The Adult Psychiatric Morbidity Survey (APMS) conducted in 2007 found higher rates of smoking among those with a diagnosis of a mental illness or those using psychotropic medication. Smoking prevalence within specific diagnostic groups ranged from 57% (those who have attempted suicide in the last year of the APMS), 56% (probable psychosis), 34% (major depression and other common mental disorders)

to 25% (eating disorders). Recently, results from the 2014 Adult Psychiatric Morbidity Survey found a strong association between smoking and suffering with a common mental health disorder (CMD), with a higher incidence (31.3%) of mental illness found in people smoking 15 or more cigarettes a day compared with 23.3% of those smoking fewer than 15 cigarettes a day (McManus et al. 2016).

### **Why do Individuals with serious mental illness (SMI) smoke more?**

Patients with significantly greater levels of neurotic and psychotic symptoms are likely to smoke more compared to those with less severe symptom profile (Action on Smoking and Mental Health, 2011; Mental Health Foundation, 2016). The heightened levels of psychosis are usually associated with prolonged periods of anxiety and distress and for smokers with SMI, nicotine introduction stimulates dopamine production in the brain which enhances pleasurable feelings and relaxation (Novak et al. 2010). Equally, Patkar et al. (2002) claims that patients smoke to 'self-medicate' as nicotine possibly reduces the severity of psychiatric symptoms and side effects of antipsychotic drugs. However, the 'self-medication' theory commonly proposed could be related to increased tobacco dependence as smokers need higher levels of nicotine to feel normal. Ratschen et al. (2011) emphasise that as the relief from nicotine withdrawal is usually temporary, continued smoking can further exacerbate mental wellbeing in the long run.

A survey conducted by McNally et al. (2006) among mental health staff found less favourable attitudes than general staff to smoke free clinical settings. Unsurprisingly, a study by Hehir et al. (2013) in a mental health facility found staff who smoked were more negative about the possibility that patients would succeed at smoking cessation in the long-term compared to non-smoking staff. Furthermore, due to the lax smoking culture, Ratschen et al. (2011) found that smoking acts as the machinery for many of the rules of communication and practices in mental health settings. Even though smoke free policies are part of NHS organisational ethos, cigarettes are still used often as tools to reward or punish patients by staff in mental health settings (Ratschen et al. 2011; Johnson et al. 2010). Such practices can undermine implementation of smoking cessation strategies as they serve to reinforce rather than address smoking behaviour and do little to support smokers with mental illness to quit.

Individuals with SMI are vulnerable to misleading messages promoted by the tobacco industry; research shows that the tobacco industry specifically targets these patients (Apollonio and Malone, 2005). Equally, Boyd and Lasser (2001) believe that the tobacco industry may indirectly or directly target psychologically vulnerable groups as part of the tobacco advertising. It is likely that individuals with SMI have difficulty to recognise erroneous claims and consequences of tobacco advertising. Unsurprisingly, smokers with schizophrenia in the UK contribute £139m to the Treasury (Action on Smoking and Health, 2011).

Research by Jarvis and Wardle (1999) found that tobacco dependency was strongly associated with social deprivation. Factors of social deprivation related to smoking are also linked to the course of mental illness and include low income, poor education and unemployment (Mallet, 2013). These factors as noted by Jarvis and Wardle (1999) are diverse and adverse in relation to

the individual's environment. Research carried out in general population found that excessive smoking rates are higher in lower social economic groups with a significant proportion of smokers with serious mental health illness overrepresented in this group and are unable able to work, have limited income and are socially isolated; no wonder patients residing in psychiatric institutions often report boredom as a reason for excessive smoking (Clenaghan, 2010; Dunstan, 2010). In the United States, the national health interview survey found psycho-social stress is associated with excessive smoking rates among individuals from deprived areas (Lawrence et al. 2009). Gillam et al. (2012) argue that 'health inequalities are socially determined and reflect unequal distribution of power, income, goods and services'. Smokers with SMI who are over represented in lower social economic groups have a low uptake of health and social care interventions. Possibly, this is due to complex psychosocial challenges and the stigma of living with mental illness which in turn contributes significantly to the main causes of ill-health and mortality in this group, with the rates of cancer, heart disease and respiratory diseases among this group double those in the general population (Health Development Agency, 2004; Action on Smoking and Health, 2013; Mental Health Foundation, 2016).

Research evidence supports the existence of genetic associations between major depression and tobacco dependency. A study of Finnish twins found a modest genetic correlation (Korhonen, et al. 2007); findings of a co-twin control and bivariate design study in the United States found that chronic smoking and major depression were significantly genetically connected (Hitsman, et al. 2009). Similarly, Kendler, et al. (1993) found a moderate genetic relationship between major depression and continued tobacco use and even a stronger relationship between depression, schizophrenia and tobacco dependence in men was reported. Perhaps, the interplay between genetic vulnerability and environmental risk factors may explain an individual's craving for smoking.

### **Statutory and policy initiatives**

A review by Department of Health (1993) found that advertising impacted positively on smoking related behaviour, with advertising seen to increase tobacco consumption. As well as the Broadcasting Acts of 1990 and 1996 which prohibited tobacco advertising on television and radio, in 2003 the Labour government legislated to ban cigarette advertising on billboards. Unsurprisingly, Action on smoking and health (2015) reported that internal Tobacco company findings indicated that people are more inclined to smoke the most heavily-promoted brands. Consequently, the UK government in May 2016 introduced a law requiring standard packaging of tobacco products- this was in part made possible by the relentless lobbying of the public health community. This strategy has not been without its limitations as the Tobacco industry is adopting less regulated advertising avenues (internet) to promote their products (Bach, 2016).

Furthermore, the subsequent passing of the Health Care Act in 2006 was followed in July 2008 by a complete ban on smoking in mental health settings. The Mental Health Foundation (2008) conducted a survey in a range of psychiatric units to evaluate the implementation of the ban, of the 120 responses from 100 NHS centres, 15.6% found the ban was totally effective, 72.5%

reported partial effectiveness while 11.9% reported that the ban was not effective at all. Recently, Robson et al. (2017) found that introduction of the smoking ban in mental health settings appeared to reduce the incidence of physical assaults and there has been an increased provision of cessation therapies and training for staff.

Following the publication of the “Tobacco Control Plan” by the coalition government in 2011, (Public Health England, 2015), in February 2017, a cross party cluster of peers called on the UK government to publish the Tobacco control strategy without further postponement and, a new plan “Towards a smoke-free generation: tobacco control plan for England” was published in July 2017 (Department of Health 2017). Under the Tobacco control plans of 2011, 2017 and the Health Care Act 2013, NHS and social care providers are tasked to commission services to address tobacco dependency in the general population and to foster inter-service working partnerships aimed at addressing inequalities and improving access to health interventions. However, austerity measures across public sector services which have resulted into cutting effective social and health protection programmes that mitigate risks to health has led to reduction in health coverage and impacted on inter-service working dynamics.

### **NHS stop smoking services**

While mental health settings have been sluggish to implement smoking cessation support for individuals with SMI, these patients are known to be motivated to quit compared to people without mental illness (Campion et al. 2008; McNeill and Szatkowski; 2013; World Health Organisation, 2013; Public Health England, 2015). The NHS Stop Smoking Services have been appraised as cost effective in providing support for individuals to reduce and /or quit smoking through group or one-to-one individualised support (Health and Social Care Information Centre 2015). The services are widely available via public and third sector agencies and, are provided by trained specialist smoking cessation advisors. Action on Smoking and Health (2011) report found that effectively trained staff can facilitate early screening and monitoring for unhealthy lifestyle behaviours such as smoking. Several mental health settings have significantly increased uptake of training for staff to deliver cessation interventions but uptake for some remains low (Public Health England, 2015). Following the launch of the NHS stop smoking services, there has been increased accessibility of cessation interventions in the primary care sector via health centres, pharmacies, General practice and third sector. In general practice at least 1 in 5 of the people seen every day are smokers (Rodman and Gaduzo, 2015). There is evidence that advice and behaviour support given by GPs and primary care staff is effective (Public Health England 2015). The NHS Making Every Contact Count (MECC) programme emphasises staff, NHS and social care providers’ readiness to support people to improve their health and wellbeing through behaviour change (Varley and Murfin (2014). Recently, more government policies for example the ‘NHS Five Year Forward View For Mental Health’ highlight the need for health professionals to facilitate screening and offer lifestyle interventions and/ or refer patients who require support to specialist services i.e. smoking cessation (NHS England, 2017; NICE, 2013). In general practice, this is reflected in contractual changes since 2004 in the General Medical Services contract (the

Quality and Outcomes Framework (QOF)) where points and financial incentives are awarded for recording patients' smoking status, providing cessation advice or referrals.

A range of interventions are offered in the NHS stop smoking services including opportunistic brief advice, psychological support and information giving (posters, leaflets) to raise awareness of cessation services and benefits of quitting. Brief and routine intervention offered is pro-active and person centred considering the individual's needs and access to pharmacotherapies (Nicotine replacement therapies(NRT), lozenges, gum, patches, nasal sprays, bupropion and Varenicline) if required (National Institute for Health and Clinical Excellence, 2013).

While the average cessation rate for NHS stop services is normally 50% at week four, for smokers with SMI, Godfrey et al. (2005) argue that the traditional 'four weeks' quit attempt maybe inadequate support and that smokers with SMI often require enhanced support to quit. Factors such as unemployment, social isolation, poverty and stigma of mental illness common in individuals with SMI serve as barriers to successful implementation of health interventions this population (Royal College of Psychiatrists, 2013). Therefore, it is prudent to consider these and other health determinants first when conducting health assessments and monitoring. Holistic care planning needs to consider the effects of smoking on the mental wellbeing of patients and especially the link between smoking and increased metabolism of drugs used in mental health.

### **Combination of pharmacotherapy, individual and group therapy**

Behavioural interventions for smoking cessation augment the benefits of pharmacotherapy in individuals with SMI and improve mood states during and after quitting attempts (Ferguson et al. 2003). Group and individual therapy is more effective than self-help (Wang et al. 2008; Lancaster and Stead, 2005; Roberts et al. 2013) and the quit success rate increases by up to 70% when pharmacotherapy (Bupropion, NRT) is combined with either group or individual therapy (Aveyard et al. 2012; Health and Social Care Information Centre, 2015). West et al. (2004) found high cessation rates when brief advice and NRT was used in inpatients in mental health settings; the uptake of the two interventions is more common in mental health settings due to the relatively low cost (Public Health England 2015). Individuals with SMI can benefit from both NRT and behavioural support. However, too often mental health professionals are reluctant to facilitate these therapies in practice (Sharma et al. 2016).

A case study of 700 smokers with mental illness in a London NHS Trust found that 30% had quit and/or reduced tobacco use significantly following a 12-weekly intervention program involving brief advice, behavioural therapy, pharmacotherapy and follow up support within inpatient and community settings (Clenaghan, 2010). Training to deliver cessation interventions equipped staff on this project with skills to facilitate opportunistic screening, monitoring and follow up support. Action on Smoking and Health (2015) argue that to deliver cessation interventions effectively, provider services must invest in staff training and education, equally Hughes (2007), supports this view and emphasises that mental health nurses are well-placed to intervene with individuals with SMI.

In their study examining quit support interventions amongst smokers with psychotic disorders in the community, Baker et al. (2006) found that the smoking abstinence rate at the end of the trial (36 weeks) was significantly higher in participants who received a combination of (NRT, cognitive behaviour therapy) compared to routine care. Also, individual therapy and NRT versus routine care offered led to reduction of cigarettes smoked per day from baseline (Baker et al. 2006). Similarly, findings from a study of 844 smokers with mental illness found that cessation rates in individuals who received supportive care (motivational interviewing, individual counselling) were higher when NRT was added, with almost 60% who completed the programme having successfully quit (Ashton et al. 2015). Individual or group therapy should consider assessment for other unhealthy lifestyle behaviours such as alcohol misuse alongside smoking as part of holistic care planning (Stead and Lancaster, 2005; Ingram et al. 2017).

A systematic review of smoking cessation interventions among people suffering from schizophrenia found increased cessation rates when bupropion is used alone. However, when combined with NRT, individual and/or group counselling, smoking abstinence increased without endangering mental state (Tsoi et al. 2010). Equally, two reviews of interventions combining (NRT, behavioural therapy) among depressed patients reported increased abstinence rates and reduction of depressive and anxiety symptoms (MacPherson et al. 2010).

### **Mood states and smoking cessation**

Research conducted on negative mood states after quitting attempts is less convincing, but quitters commonly report depression and poor mood states as negative effects. MacPherson et al. (2010) support Mathew et al (2017) in that behavioural approaches aimed at mood management may be key strategies in managing smoking behaviour and any associated negative mood states following quitting. A clinical trial of 68 smokers with major depression found that combining behavioural therapy with NRT resulted in significant abstinence rates than NRT alone during a 6 months follow up period. Participants who received a behavioural intervention reported lower depressive symptoms (MacPherson et al. 2010). A recent meta-analysis found that quitting smoking is linked to improved quality of life and reduced depression, stress and anxiety (Taylor et al. 2014). Recently, Mathew et al. (2017) have argued for a holistic assessment for the individual's health beliefs and symptoms of their mental illness and an evaluation of how the latter impacts on their smoking behaviour and mood. This knowledge could assist clinicians to individualise cessation support for smokers with SMI. Mathew and colleagues further contend that the incentive learning theory can engender our understanding of mental illness and how it might impact on tailored support in relation to unhealthy lifestyle behaviours such as smoking.

### **Nicotine Replacement Therapy (NRT), Bupropion and Varenicline**

A review by Wang et al. (2008) found that the use of NRT while smoking considerably increases the abstinence rates; smokers with mental illness struggle to stop and could benefit from additive NRT use while they smoke. Stead et al. (2008) also claim that combining a nicotine patch with a rapid-delivery (nasal spray) form of NRT was found to be more effective than a single type of NRT. Moreover, the study findings indicate that the risk ratio of abstinence for any type of NRT

compared with control was 1.58 with considerably higher risk ratios of abstinence for (patch, tablets, and lozenges) than gum.

A review of randomised trials compared use of NRT to placebo; the findings show that all types of NRT increased by up to 70% the likelihood of quitting although no evidence was found for overall difference in effectiveness between different types of NRT (Stead et al. 2012). Higher abstinent rates were recorded when bupropion was combined with NRT in smokers with mental illness and in their study examining the effectiveness of bupropion amongst smokers with post-traumatic stress disorder (PTSD), Hertzberg et al (2001) found that 80% of smokers prescribed bupropion successfully quit. Similarly, George et al. (2008) found that the use of bupropion almost doubles the odds of quitting smoking after six months when used as a single pharmacotherapy). In their review of cessation smoking interventions among smokers with SMI, Banham and Gilbody (2010) found that combining bupropion with NRT improves quit rates and that all pharmacological interventions are of benefit to smokers with SMI than placebo. Similarly, a systematic review of use varenicline and bupropion to help smokers with SMI to stop smoking found that both are effective and tolerable for smoking cessation (Koegelenberg et al. 2014).

Historically, the use of varenicline and bupropion among smokers with SMI has been linked to increased neuropsychiatric reactions and drug interactions and possibly, the above factors could explain low uptake and availability of both therapies in mental health settings. However, subsequent findings following a study of 8144 smokers with SMI found that varenicline increased smoking cessation in smokers without exacerbating mental illness. Equally, findings of a randomised study found that the use of varenicline and/ or bupropion in people with SMI did not show a significant increase in neuropsychiatric adverse events (Anthenelli et al. 2016). Further research shows that there is no evidence linking suicide or cardiac events to Varenicline and bupropion, the authors concluded that these smoking cessation therapies are effective and should be made more widely available in mental health settings (Cahill et al. 2008; Ware et al. 2013; Hall and Prochaska 2009). Other research findings suggest that it is safe and effective to combine varenicline and NRT and / or bupropion to maximise cessation rates among smokers (Ebbert et al. 2009; Koegelenberg et al. 2014; Taylor et al. 2015). Nonetheless, if patients taking varenicline or bupropion develop anxiety, depressed mood, suicidality or exhibit any changes in behaviour, both drugs should be stopped, and they should be medically reviewed immediately (Campion et al. 2017).

### **Implications for practice**

Despite overwhelming research evidence about the dangers of smoking, several mental health staff exhibit reluctance to engage patients about smoking and harbour negative perceptions of patients' motivation and willingness to stop smoking. Smoking cessation interventions which are effective in the population are also known to work in smokers with SMI, suggesting that mental health professionals should target cessation interventions towards smokers with SMI. Staff training, and education is essential to ameliorate such attitudes as the lack of enthusiasm among staff is likely to have an impact on patients as opportunistic advice from health professionals has

been shown to positively influence quit attempts in smokers (Department of Health 2017; Ratschen et al. 2011). Training frontline staff is essential to develop skills, knowledge and confidence to engage patients and for staff to feel enabled to offer cessation support. Additionally, this foundation could help engage patients and staff alike to challenging the lax smoking culture entrenched in mental health settings.

Increasing the knowledge of mental health staff about nicotine dependency, smoking, interventions and the interaction with psychotropic medication could enhance the support and advice mental health professionals provide to patients to quit smoking. Smoking has been found to decrease blood levels of antipsychotic and stopping smoking could low the dose needed. Smoking can make antipsychotic drugs less effective, resulting in increased dosages to have the same therapeutic effect and possibly more side effects for smokers with SMI on antipsychotic drugs. Patients on clozapine who smoke require close monitoring as doses may need to be titrated up if the patient smokes or reduced during and/or after quit attempt. It is important therefore to tailor support individually to each patient and to consider varied needs that influence the patient's health and wellbeing.

Smokers with SMI benefit from enhanced support which should be longer than the traditional 'four weeks' quit attempt (Nohlert et al. 2013; Royal College of Psychiatrists, 2013). Increased quit rates occur if interventions are adapted to the needs of patients with mental health conditions (Roberts et al. 2016). Arguably, there is need for adequate and consistent support to sustain quit attempts by considering factors such as polypharmacy, physical health and social-environmental factors (Wang et al. 2008). While the self –medication theory is broadly believed by mental health professionals, making a quit attempt has been found to improve mental health in the long term and, smoking is not an effective way of managing mental illness (Taylor et al. 2014).

Most frequently reported adverse events for varenicline are headache, insomnia, abnormal dreams. Gradual titration may improve tolerability when used in smokers with SMI. There are no serious neuropsychiatric symptoms with either varenicline or bupropion relative to nicotine patch or placebo reported in those with or without mental illness and that both therapies are effective and tolerable for smoking cessation in smokers with SMI (Anthenelli et al. 2016). Therefore, these therapies should be made more widely available in mental health settings than is currently practiced. Behavioural support and pharmacological interventions discussed in this article have been recommended by the National Institute for Health and Clinical Excellence (2013) and should be used for up to nine to twelve weeks with longer use known to be safe and still of good value in most smokers.

Many smokers with SMI are concerned about their tobacco use and want help (Szatkowski and McNeill, 2013; Ashton et al. 2014). If smokers with SMI are given good information and support, many can quit. Morris et al. (2011) studied a 10-session community based group programme involving 87 smokers with SMI and found that a smoking cessation rate of 10% by patients who participated and received information. Similarly, in a north London Mental Health Trust, emphasis has been on raising awareness of cessation services and highlighting benefits of quitting through

information giving and supporting individuals to make healthy life choices (Clenaghan, 2010). The structured smoking cessation approaches to screening and monitoring, such as the “four A’s”, Ask, Advice, Assist and Arrange (West et al. 2000) which sets out clear stages and goals for interventions are particularly useful in motivating smokers. Research evidence shows that 95% of patients expect to be questioned about their smoking behaviour and a brief intervention adopting such evidence based frameworks can be significant (McClave et al. 2010). These approaches put the patient in the ‘driving sit’, emphasising self-control and elicits ‘self-Motivating’ statements often used to assess behaviour change and motivation (Rosengren, 2009; Stead et al. 2008; Prochaska, 2011). As well as smoking, mental health professionals should engage patients around other lifestyles factors such as alcohol use, weight management, and drug and substance misuse. Smokers drink twice as much alcohol as non-smokers (Rigotti et al. 2012; Prochaska et al. 2013).

In preparing this paper, the author has found that the literature around the uptake of smoking cessation support for smokers with SMI is limited; targeted improvements around the planning and delivery of cessation support could be enhanced further through future research to evaluate the uptake of cessation support and the frequency of the rate of delivery of cessation therapies towards amongst smokers with SMI.

## **Conclusion**

Smoking is the largest avoidable cause of premature death and poor health in United Kingdom and Globally. The incidence of cancers and other smoking related diseases in people with SMI remains extremely high with disproportionate levels of smoking related morbidity and mortality. Smoking cessation therapies which are known to work in the general population are equally as effective in smokers with SMI. Therefore, it is of vital importance for mental health professionals to facilitate these effective cessation therapies towards patients to address the excessive smoking rates among this patient group.

## References

Action on Smoking and Health. (2011). Fact sheets. Available at: [www.ash.org.uk](http://www.ash.org.uk) (accessed 10.7.2017).

Action on Smoking and Health. (2013). Smoking and Mental health. Available at: [www.ash.org.uk](http://www.ash.org.uk) (accessed 11.7.2017).

Action on Smoking and Health. (2015). Tobacco Advertising and Promotion in the UK- Fact sheets. Available at: [www.ash.org.uk](http://www.ash.org.uk) (accessed 11.7.2017).

Anthenelli, R.M., Benowitz, N.L., West, R., St Aubin, L., McRae, T., Lawrence, D., Ascher, J., Russ, C., Krishen, A., Evins, A. (2016). 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. *Lancet*, 387. 2507-20.

Apollonio, D.E., Malone, R.E. (2005). Marketing to the marginalised: tobacco industry targeting of the homeless and mentally ill. *Tobacco Control*, 14, 409-415.

Ashton M, Rigby, A., Galletly C. (2014). Do population-wide tobacco control approaches help smokers with mental illness? *Australia New Zealand Journal of Psychiatry*, Vol 48(2), 121-123.

Ashton M, Rigby, A., Galletly C. (2015). Evaluation of a community based smoking cessation programme for people with severe mental illness. *Tobacco Control*. 24, 275–280.

Aveyard P, Begh R, Parsons, A., West R. (2012). Brief opportunistic smoking cessation interventions: a systematic review and meta-analysis to compare advice to quit and offer of assistance. *Addiction*, 107(6), 1066-1073.

Bach, L. (2016). Tobacco product marketing on the internet. Campaign for Tobacco-Free Kids. Washington. Available at: [www.tobaccofreekids.org/research/factsheets/pdf/0081.pdf](http://www.tobaccofreekids.org/research/factsheets/pdf/0081.pdf) (accessed 18.8. 2017).

Baker, A., Richmond, R., Haile, M., Lewin, T.J., Carr, V.J., Taylor, R.L., Jansons, S., Wilhelm, K. (2006). A randomized controlled trial of a smoking cessation intervention among people with a psychotic disorder. *American Journal of Psychiatry*, 163(11), 1934-1942.

Banham, L., Gilbody, S. (2010). Smoking cessation in severe mental illness: what works? *Addiction*, 105, 1176-1189.

Boyd, J.W., Lasser, K. (2001). Tobacco Madness. Commentary. *Psychiatric Times* 17. Available at <http://www.psychiatristimes.com/articles/tobacco-madness> (accessed 10.8.17).

Cahill, K., Stead, L., Lancaster, T. (2012). Nicotine receptor partial agonists for smoking cessation. Cochrane Database of Systematic Reviews. Available at: <http://doi/10.1002/14651858.CD006103.pub6> (accessed 18.8.17).

Campion, J., Hewitt, J., Shiers, D., Taylor, D. (2017) Pharmacy guidance on smoking and mental disorder – 2017 update. Royal College of Psychiatrists, National Pharmacy Association and Royal Pharmaceutical Society. RPS

Campion, J., Checinski, K., McNeill, A. (2008). Smoking by people with mental illness and benefits of smoke-free mental health services. *Advances in Psychiatric Treatment* 14, 217-228.

Clenaghan, M. (2010). Case study. Smoking cessation success in south west London; In Smoking and Mental Health Briefing (2013). Mental Health Network: NHS confederation.

De Leon J, Dadvand M, Canuso C, White A, Stanilla J.K., Simpson G, M. (1995). Schizophrenia and smoking: an epidemiological survey in a state hospital. *American Journal of Psychiatry*, (152), 453-5.

Department of Health. (2017). Towards a smoke-free generation: tobacco control plan for England: Stationery Office.

Department of Health. (1993). Effect of tobacco advertising on tobacco consumption: A discussion document reviewing the evidence, Economics & Operational Research Division, Department of Health.

Dunstan, S. (2010). General Lifestyle Survey overview: A report on the 2010 General Lifestyle Survey. Newport: Office for National Statistics.

Ebbert, J.O., Burke, M.V., Hays, J.T., Hurt, R.D. (2009) Combination treatment with varenicline and nicotine replacement therapy. *Nicotine Tobacco Research*,11(5),572-6.

Ferguson, D., Goodwin, R., Horwood. L. (2003). Major depression and cigarette smoking: results of a 21-year longitudinal study. *Journal of Psychological Medicine*, (33), 1357-1367.

Gillam, S., Yates, J., Badrinath, P. (2012). Essential Public Health (2<sup>nd</sup> ed), Cambridge University Press.

Godfrey C, Parrott S, Coleman, T., Pound E. (2005). The cost-effectiveness of the English smoking treatment services: evidence from practice. *Addiction*,100 (Supplement 2),70-83.

Hall, S.M., Prochaska, J.J. (2009). Treatment of smokers with co-occurring disorders: emphasis on integration in mental health and addiction treatment settings. *Annual Review Clinical Psychology*, 5: 409-431.

Health and Social Care Information Centre (2010). Statistics on NHS Stop Smoking Services: England. Available at: [www.ic.nhs.uk/pubs/SSS0910](http://www.ic.nhs.uk/pubs/SSS0910)(accessed 18.8.17).

Health and Social Care Information Centre. (2012). Statistics on drug misuse: England, London: NHS Information Centre.

Health and Social Care Information Centre (2015). Statistics on NHS Stop Smoking Services in England. Key Facts Report. Health and Social Care Information Centre.

Health and Social Care Information Centre. (2007). Adult Psychiatric Morbidity Survey in England. Results of a household survey. NHS Information Centre. Available at: [www.sp.ukdataservice.ac.uk/doc/6379/mrdoc/pdf/6379research\\_report.pdf](http://www.sp.ukdataservice.ac.uk/doc/6379/mrdoc/pdf/6379research_report.pdf) (accessed 31.8.2017).

Health Development Agency. (2004). Smoking and patients with mental health problems: London, Health Development Agency.

Hehir, A. M., Indig, D., Prosser, S., Archer, V. A. (2013) Implementation of a smoke-free policy in a high secure mental health inpatient facility: Staff survey to describe experience and attitudes. *Biomedical Central Public Health*; 13:315.

Hertzberg, M. A., Moore, S. D., Feldman, M. E., Beckham, J. C. (2001). A preliminary study of bupropion sustained-release for smoking cessation in patients with chronic post-traumatic stress disorder. *Journal of Clinical Psychopharmacology*,21; 94-98.

Hitsman, B., Moss, T.G., Montoya, I.D., George, T.P. (2009). Treatment of tobacco dependence in mental health and addictive disorders. *Canadian Journal of Psychiatry*, 54(6), 368-378.

Hughes, J. R. (2007). Depression during tobacco abstinence. *Nicotine and Tobacco Research*, (9), 443-446.

Ingram, I., Kelly, P.J., Deane, F.P, Baker, A.L., Lyons, G., Blackman, R. (2017). An Exploration of Smoking Among People Attending Residential Substance Abuse Treatment: Prevalence and Outcomes at Three Months Post-Discharge. *Journal of dual diagnosis*, 13(1), 67-72. Available at: [http:// DOI: 10.1080/15504263.2017.1287456](http://DOI: 10.1080/15504263.2017.1287456) (accessed 20.8.17).

Jarvis, M., Wardle, M. (1999). Social patterning of health behaviours; the case of cigarette smoking In: Social determinants of health. Eds: Marmot, M. and Wilkinson, R. Oxford University Press.

Jenkins, R, Meltzer, H, Bebbington, P, Brugha, T, Farrell, M, McManus, S., Singleton, N. (2009). 'The British Mental Health Survey Programme: achievements and latest findings' *Social Psychiatry and Psychiatric Epidemiology*, vol 44, no. 11, 899 - 904. Available at: <http://DOI: 10.1007/s00127-009-0112-7>(accessed 10.6.17).

Johnson, J, L., Moffatt, M, B., Malchy, A, L. (2010). In the shadow of new smoke free policy: A discourse analysis of health care providers engagement in tobacco control in community mental health. *Journal of international mental health systems*, (4),4-23.

Kendler, K.S., Neale, M.C., MacLean, C.J., Heath, A.C., Eaves, L.J., Kessler, R.C. (1993). Smoking and major depression. A causal analysis. *Archives of General Psychiatry*, 50, 36-43.

Koegelenberg, C.F., Noor, F., Bateman, E.D., van Zyl-Smit, R.N., Bruning, A., O'Brien, J.A., Smith, C, Abdool., Gaffar, M.S. (2014). Efficacy of varenicline combined with nicotine replacement therapy vs varenicline alone for smoking cessation: a randomized clinical trial. *Journal of American Medical Association*, 312(2),155-61.

Korhonen, T., Broms, U., Varjonen, J., Romanov, K., Koskenvuo, M., Kinnunen, T., Kaprio, J. (2007). Smoking behaviour as a predictor of depression among Finnish men and women: a prospective cohort study of adult twins. *Psychological Medicine*, 37,705–15.

Lancaster, T., Stead, L.F. (2005). Individual behavioural counselling for smoking cessation. Cochrane Database of Systematic Reviews, Issue 2. Art. No.: Available at <http://DOI: 10.1002/14651858.C> (accessed 1.6.17).

Lawrence, D., Mitrou, F., Zubrick, S.R. (2009). Smoking and mental illness: results from population surveys in Australia and the United States. *Biomed central Public Health*, (9),285.

MacPherson, L.1., Tull, M.T., Matusiewicz, A.K., Rodman, S., Strong, D.R., Kahler, C.W., Hopko, D.R., Zvolensky, M.J., Brown, R.A., Lejuez, C.W. (2010). Randomized controlled trial of behavioural activation smoking cessation treatment for smokers with elevated depressive symptoms. *Journal of Consulting and Clinical Psychology*, 78 (1), 55-61.

Mallett, C. (2013). Smoking and mental health: NHS confederation-Mental health network. NHS Confederation.

Mathew, A.R., Hogarth, L., Leventhal, A.M., Cook, J.W., Hitsman, B. (2017). Cigarette smoking and depression comorbidity: systematic review and proposed theoretical model. *Addiction*, 112(3), 401-412.

McClave, A. K., McKnight-Eily, L. R., Davis, S., Dube, S. R. (2010). Smoking Characteristics of Adults With Selected Lifetime Mental Illnesses: Results From the 2007 National Health Interview Survey. *American Journal of Public Health*, 100(12), 2464-2472. Available at: <http://doi.org/10.2105/AJPH.2009.188136> (accessed 19.8.17).

McManus, S., Bebbington, P., Jenkins, R., Brugha, T. (2016). Mental health and wellbeing in England: Adult Psychiatric Morbidity Survey 2014. Leeds: NHS Digital.

McNally, L., Oyefeso, A., Annan, J., Perryman, K., Bloor, R., Freeman, S., Wain, B., Andrews, H., Grimmer, M., Crisp, A., Oyebode, D., Ghodse, A.H. (2006). 'A survey of staff attitudes to smoking-related policy and intervention in psychiatric and general health care settings'. *Journal of Public Health*, vol 28, no. 3, 192-196.

Meltzer, H., Singleton, N., Lee, A., Beddington, P., Brugha, T., Jenkins, R. (1996). Economic Activity and Social Functioning of Residents with Psychiatric Disorders. (OPCS Surveys of psychiatric Morbidity in Great Britain Report No. 6). London: Stationary office.

Mental Health Foundation. (2008). Death of the smoking den. The initial impact of no smoking legislation in psychiatric units in England in. Mental Health Foundation: London.

Mental Health Foundation. (2016). Fundamental Facts About Mental Health. Mental Health Foundation: London.

Morris, C.D., Waxmonsky, H.A., May, M.G., Tinkelman, D.G., Dickinson, M., Giese, A., A. (2011). Smoking reduction for persons with mental illnesses: 6-month results from community-based interventions. *Community Mental Health Journal*; 41, 694-702.

National Institute for Health and Clinical Excellence (NICE) (2013). Stop smoking services: Evidence-based recommendations on stop smoking services for people who smoke or use tobacco in any form. London: NICE. Available at <https://www.nice.org.uk/guidance/ph10> (Accessed 19.1.2018).

NHS England. (2016) NHS Five Year Forward view. The Mental Health Taskforce [ONLINE] Available at: <https://www.england.nhs.uk/wp-content/uploads/2016/02/Mental-Health-Taskforce-FYFV-final.pdf>. (Accessed 19.1.18).

Nohlert, E., Ohrvik, J., Tegelberg, A., Tillgren, P., Helgason, A.R. (2013). Long-term follow-up of a high- and a low-intensity smoking cessation intervention in a dental setting - a randomized trial. *BMC Public Health*, 13,592.

Novak, G., Seeman, P., Le Foll, B. (2010). Exposure to nicotine produces an increase in dopamine D2 (High) receptors: a possible mechanism for dopamine hypersensitivity. *International Journal of Neuroscience*, 120 (11), 691-7.

Office for National Statistics. (2003). Statistics on smoking: England, London: HMSO.

Office for National Statistics. (2016). General Household Survey. Statistical Bulletin. Available at <https://www.ons.gov.uk/> (accessed 2.8.17).

Patkar, A.A, Gopalakrishnan, R., Lundy, A., Leone, F.T, Certa, K.M., Weinstein, S.P. (2002). Relationship between tobacco smoking and positive and negative symptoms in schizophrenia, *Journal of Nervous and Mental Diseases*, (190), 604-10.

Prochaska, J. J. (2011). Smoking and Mental Illness: Breaking the Link. *New England Journal of mental disorders*, (365),196-8.

Prochaska, J.J., Hall, S.E., Delucchi, K., Hall, S.M. (2013). Efficacy of initiating tobacco dependence treatment in inpatient psychiatry: a randomized controlled trial. *American Journal of Public Health* 15,11-19.

Public Health England. (2015). Smoking cessation in secure mental health settings: guidance for commissioners. Public Health England.

Raftery, J. (2001). Faster access to modern treatments, Analysis of guidance on health technologies. *British Medical Journal*, (323),1300-1303.

Ratschen, E., Britton, J., McNeill, A. (2011). The smoking culture in psychiatry: time for change. *The British Journal of Psychiatry*, 198, 6-7.

Rigotti, N.A., Clair, C., Munafo, M.R., Stead, L.F. (2012). Interventions for smoking cessation in hospitalised patients. *Cochrane Database Systematic Review*, 16 (5) Available at: <http://10.1002/14651858.CD001837.pub3> (accessed 10.8.17).

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.

Roberts, N J., Susan M, K., Sheree, M. (2013). Behavioural Interventions Associated with Smoking Cessation in the Treatment of Tobacco Use." *Health Services Insights* (6),79–85.

Robson, D., Spaducci, G., McNeill, A., Stewart, D., Craig, T.J., Yates, M., Szatkowski L. (2017). Effect of implementation of a smoke-free policy on physical violence in a psychiatric inpatient setting: an interrupted time series analysis. *Lancet Psychiatry*,4(7),540-546.

Rodman, A and Gaduzo, S. (2015). Smoking Cessation: Quick summary; tobacco smoking and the role of primary care in preventing and treating addiction. PCRS, ©Primary Care Respiratory Society UK.

Rosengren, D.B. (2009). Building Motivational interviewing skills, a practitioner workbook, New York Guilford press.

Royal College of Psychiatrists. (2013). Smoking and mental health London, RCP. Available at:[www.rcplondon.ac.uk/](http://www.rcplondon.ac.uk/)(accessed 31.8.2017).

Sharma, R., Gartner. C E., Hall, W. (2016) The challenge of reducing smoking in people with serious mental illness. *The Lancet Respiratory Medicine*, (4), Issue 10, 835-844.

Stead, L., Lancaster, T. (2005). Group behaviour therapy programmes for smoking cessation. *Cochrane Database of Systematic Reviews*. Issue 2. Available at: <http://DOI:10.1002/14651858.CD001007.pub2>(accessed 2.8.17).

Stead, L.F., Perera, R., Bullen, C., Mant, D., Lancaster, T. (2008). Nicotine replacement therapy for smoking cessation. *Cochrane Database of Systematic Reviews*, issue1. Available at: <http://DOI:10.1002/14651858.CD000146.pub3> (accessed 10.8.17).

Stead, L.F., Perera, R., Bullen, C., Mant, D., Hartmann-Boyce, J., Cahill, K., Lancaster, T. (2012). Nicotine replacement therapy for smoking cessation. *Cochrane Database of Systematic Reviews* Issue 11. Available at: <http://DOI:10.1002/14651858.CD000146.pub4> (accessed 15.8.17).

Szatkowski, L., McNeill, A. (2015). Diverging trends in smoking behaviours according to mental health status. *Nicotine & Tobacco Research*, 3, 356-60.

Szatkowski, L., McNeill, A. (2013). The delivery of smoking cessation interventions to primary care patients with mental health problems. *Addiction*, 108:1487–1494.

Taylor, D., Paton, C., Kapur, S. (2015). Maudsley prescribing guidelines. 11<sup>th</sup> ed. Wiley-Blackwell.

Taylor, G., McNeill, A., Girling, A., Farley, A., Lindson-Hawley, N., Aveyard, P. (2014). Change in mental health after smoking cessation: systematic review and meta-analysis. *British Medical Journal*, 348:1151.

Tsoi, D. T., Porwal, M., Webster, A.C. (2010). Interventions for smoking cessation and reduction in individuals with schizophrenia. Cochrane Database of Systematic Reviews. Issue 6. Available at: [http:// DOI: 10.1002/14651858.CD007253.pub3](http://DOI: 10.1002/14651858.CD007253.pub3) (accessed 20.8.17).

Wang, D., Connock, M., Barton, P., Fry-Smith, A., Aveyard, P., Moore, D. (2008). 'Cut down to quit' with nicotine replacement therapies in smoking cessation: a systematic review of effectiveness and economic analysis. *Health Technology Assessment*, 12(2), 1-156.

Wardle, H., Moody, A., Griffiths, M., Orford, M., Volberg, R. (2011). Defining the online gambler and patterns of behaviour integration: evidence from the British Gambling Prevalence Survey 2010. *International Gambling Studies*, 11: 3,339-356.

Ware, J.H., Vetrovec, G.W., Miller, A.B., Van, T. A., Gaffney, M., Yunis, C. (2013). Cardiovascular safety of varenicline: patient-level meta-analysis of randomized, blinded, placebo-controlled trials. *American Journal of Therapeutics*, 20(3), 235-46.

West, R., McNeill, A., Raw, M. (2000). Smoking cessation guidelines for health professionals: an update. *Thorax*. 55 (12),987-999.

West, R., McNeill, A., Raw, M. (2004). Smoking Cessation Guidelines for Scotland. NHS Health Scotland and ASH Scotland.

World Health Organisation. (2013). Framework Convention on Tobacco Control. Available at: [www.who.int/tobacco/control/measures\\_art\\_14/en](http://www.who.int/tobacco/control/measures_art_14/en) (accessed 30.12.17).

Varley, E and Murfin, M. (2014). An Implementation Guide and Toolkit for Making Every Contact Count:

Using every opportunity to achieve health and wellbeing. NHS Derby, Trent publications.