An evidence-based guide to smoking cessation therapies

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Abstract

Despite a general decline in smoking in the UK, prevalence remains high in certain groups such as young adults, pregnant women, those who have a mental Illness and those from socio-economically disadvantaged backgrounds. These groups are also more likely to benefit from targeted smoking cessation interventions. Clinical contact between health professionals and patients who smoke creates an opportunity for offering cessation interventions and to reduce smoking-related harm. This article summarises evidence reported in high quality systematic reviews, on smoking cessation interventions that could be offered by health professionals coming in to contact with patients who smoke. The evidence presented here suggests that brief advice by a health professional is beneficial in achieving smoking cessation and so is intensive behavioural support alone or in combination with pharmacotherapies (nicotine replacement therapies (NRTs), bupropion and varenicline). Pharmacotherapies are also effective individually in achieving smoking cessation; a combination of NRTs (oral or skin patch) can be particularly helpful among highly dependent smokers. Pharmacotherapies in combination with behavioural support delivered in health care settings are more effective than when used alone and delivered in community settings, respectively. Electronic cigarettes are also effective in achieving smoking cessation and are more effective than NRT.

In the 1970s, around 50% of the UK's population smoked tobacco in one form or another; the proportion dropped rapidly to one third by the 1990s and has since been declining at a slower rate (ONS, 2021). Smoking prevalence in the UK has now fallen to 13.3% (ASH, 2021). However, this reduction is not evident across socioeconomic groups. Unemployed adults (25.7%) and people who have no qualifications (28.2%) have a higher proportion of current smokers (ONS, 2021), making smoking one of the principal causes of the health divide across the socioeconomic strata. Higher smoking prevalence is also observed in people with a mental Illness (40%), who are more than twice as likely to smoke than the general population (The Royal College of Physicians, 2013). In 2019, an estimated 15% (74,600) of all deaths of adults aged 35 and over in England were attributable to smoking (Global Burden of Disease Study, 2019). However, if people quit before the age of 40, 90% of excess deaths due to smoking can be avoided; and if they quit before the age of 30, 97% of excess deaths can be avoided (Pirie et al, 2013).

Smoking cessation

Smoking is the single most preventable cause of premature mortality (Department of Health, 1998; Department of Health, 2000; Raw et al, 1998). In recent decades, the UK government has introduced a range of initiatives to reduce smoking prevalence. Thus, the proportion of current smokers has decreased substantially from 27% in

2011, to 13.3% in 2021 (ONS, 2022). However, this decrease Is not apparent in among younger adults, people who have a mental illness, and those who are the most socioeconomically disadvantaged, including ethnic minorities (Simpson et al, 2010; Szatkowski & McNeill, 2015).

Smoking cessation by health care providers

Many smokers who wish to quit find it extremely difficult to give up on their own without professional support, leading them to several futile quit attempts (Fiore, 2000). In the UK, those attending Stop Smoking Services are four times more likely to give up their smoking habit successfully than those attempting to quit on their own (NICE, 2018). The Office for National Statistics (ONS) reports that 55.3% of current smokers intend to quit (ONS, 2021). Of the 178,198 people receiving NHS support to set a quit date in 2021-2022, NHS Digital report that 54.8% were successful (NHS digital, 2022).

Nurses constitute one of the largest groups of health professionals in the country and are involved in the vast majority of clinical contacts. They, therefore, have an opportunity to influence the smoking behaviour of their patients and reduce smoking-related harm (Percival et al., 2003; Whyte & Kearney, 2003). A systematic review found that nurse-delivered interventions including the provision of advice, counselling, and/or other strategies to help people quit smoking, significantly increase the likelihood of quitting among patients who smoked (RR: 1.29, 95% CI: 1.21 to 1.38) compared to controls or usual care (Rice et al., 2017).

The NICE guidelines for health professionals recommend using a range of smoking cessation interventions and activities, including pharmacological (nicotine replacement therapy (NRT), bupropion and varenicline), as well as non-pharmacological options, such as behavioural therapies (NICE, 2018). The National Centre for Smoking Cessation and Training (NCSCT) provides training resources and assistance understanding and implementing interventions in line with NICE guidelines for all health care providers who have contact with smokers (NCSCT, 2021). However, it is evident that more work is required to ensure that support reaches smokers. The British Thoracic Society (BTS, 2022), recently reported in an audit of 120 acute hospitals in the UK that during hospital visits 79% of people were asked about their smoking status, only 45% were given brief advice, 15% were offered referral to a smoking cessation service, and 9% were seen by a smoking cessation practitioner. Similarly, only 5% of in-patients were provided with NRT, varenicline and/or an e-cigarette in accordance with NICE guidelines.

This article offers a practical, accessible, and evidence-based guide on smoking cessation therapies for nurses providing health care in a variety of settings. It summarises evidence from a range of recent systematic reviews on smoking cessation interventions, in line with the NICE recommendations (2018) and contemporary views on behaviour change theories and techniques (BCTs). *Table 1* summarises the evidence.

Defining abstinence

Smoking cessation experts have defined specific criteria as follows, to confirm when a smoker is considered to have quit (West, 2005):

A ‘self-reported 4-week quitter’ is a treated smoker assessed (face to face, by postal questionnaire or by telephone) 4 weeks after the assigned quit date who declares that s/he has not smoked even a single puff of a cigarette in the past 2 weeks

A ‘carbon-monoxide (CO) verified 4-week quitter’ is a self-reported 4-week quitter and his/her expired-air CO is assessed 4 weeks after the assigned quit date and found to be less than 10 ppm

A ‘52-week quitter’ is a treated smoker assessed (face to face, by postal questionnaire or by telephone) 52 weeks after the designated quit date and declares that s/he has not smoked more than 5 cigarettes in the past 50 weeks.

Smoking cessation therapies in health care practice

Brief interventions

Brief interventions delivered by a health professionals are those that typically last less than ten minutes. They include opportunistic advice, discussion, negotiation or encouragement and, where necessary, referral to a specialist service (NICE, 2018).

Compared to no advice, brief smoking cessation advice by practitioners (physician or physician supported by other health care workers) increases the likelihood of successful quit attempts at six months (RR: 1.66, 95% CI: 1.42 to 1.94). Assuming an unaided smoking cessation rate of 2-3%, brief advice can increase the cessation rate by a further 1-3% (Stead et al, 2013).

Behavioural support interventions/counselling (individual or group)

Behavioural support interventions typically offer advice and counselling that focuses on stopping smoking and/or providing information about stopping smoking, either in a group or one-to-one setting (Hartmann-Boyce et al., 2021). Telephone counselling, quit lines and more recently, mobile phone applications are used to support those who are considering quitting, and those who have recently quit smoking (Crane et al., 2018; NICE, 2018). Behaviour support Interventions can independently increase quit rates with the strongest benefits found when using any form of counselling (Hartmann-Boyce et al., 2021).

Face-to-face behavioural support Interventions

Behavioural support interventions delivered via face-to-face sessions by a trained smoking cessation counsellor (from a background of social work, psychology, psychiatry, health education or nursing) achieved higher success in quitting at 6 months (RR: 1.57, 95% CI 1.40 to 1.77) compared to brief interventions. These interventions, which typically involve intensive counselling for more than 10 minutes, included a review of the smoking history, their motivation to quit, identification of high-risk situations, and proposing problem-solving strategies to cope with such situations (Lancaster & Stead, 2017). More intensive counselling may be more successful compared to brief counselling was also observed (RR: 1.29, 95% CI 1.09 to 1.53).

Motivational interviewing (MI; a counselling method which involves enhancing a patient's motivation to change by using guiding principles) is another method which has been found to be beneficial. MI significantly increases quitting success when compared to brief advice or usual care, (RR: 1.26, 95% CI 1.16 to 1.36). When delivered by a clinician this resulted in a RR of 3.49 (95% CI 1.53 to 7.94). When delivered by counsellors the effect was smaller (RR: 1.25, 95% CI 1.15 to 1.63), however still resulted in higher success than brief advice or usual care. When conducted through shorter sessions (less than 20 minutes per session), this resulted in a RR of 1.69 (95% CI 1.34 to 2.12) compared to controls (Lindson-Hawley et al., 2016).

Longer, more intensive face-to-face behaviour support delivered by a clinician or counsellor are more beneficial than brief advice or usual care.

In recent years, since the implementation of social distancing rules during the COVID-19 pandemic and subsequent changes to face-to-face appointments, face-to-face support has been limited and other methods which do not involve contact have become more common. Action on Smoking (ASH, 2021) reported that changes due to COVID-19 meant that the NHS was required to move to remote methods such as telephone, text messaging, video conferencing and smart phone apps abandoning face-to-face support.

Telephone support

A smoke-free national helpline is available in the UK where smokers can receive support from a qualified smoking cessation adviser (NHS, 2022). This was first introduced in 1994 (formally called Quitline) as part of the stop smoking campaign in the UK.

When receiving support by telephone after contacting a helpline, quit rates are higher for those who receive multiple telephone sessions of proactive counselling (RR: 1.37, 95% CI 1.26 to 1.50). Telephone counselling not initiated by calls to helplines also increases quitting (RR: 1.27, 95% CI 1.20 to 1.36) and the effect is slightly larger if more calls are offered, and when smokers are motivated to try to quit. The benefit of counselling was smaller provided in addition to other treatment, such as pharmacotherapy (usually nicotine replacement therapy; NRT) than when receiving self-help material or a brief intervention. (Stead et al., 2013). Multiple sessions of proactive counselling are therefore favourable over single sessions.

Evidence suggest that text message-based smoking cessation interventions result in greater quit rates than minimal smoking cessation support, such as self-help materials or information (RR: 1.54, 95% CI 1.19 to 2.00) and in addition to other smoking cessation support in comparison with that smoking cessation support alone (RR: 1.59, 95% CI 1.09 to 2.33). More randomised controlled trials are needed to test the benefits of text-messaging (Whittaker et al., 2019).

Internet and smart phone support

When tailored and interactive, internet interventions are effective in achieving smoking cessation at six-month follow-up compared to controls (RR: 1.15, 95% CI 1.01 to 1.30). However, it must be noted that the quality of evidence was rated as low (Taylor et al., 2017). When an internet-based intervention is compared to other support there is no evidence of a benefit and the effect favours the control group (RR: 0.92, 95% CI 0.78 to 1.09; Taylor et al., 2017). This evidence suggests that interactive and tailored Internet-based interventions with or without additional behavioural support are moderately more effective than non-active controls at six months or longer. There was no evidence that these interventions were better than other active smoking treatments.

Smart phone applications (apps) are a new method of offering smoking cessation support. Smokers download an app to their smart phone and receive support through the app which uses a range of behaviour change techniques. Although early research does provide evidence of efficacy (Crane et al., 2018), this is a new concept and more research and systematic reviews in the coming years will allow us to establish the usefulness of apps and how they compare to other methods.

Group therapy

Group therapies consist of information, advice and encouragement over several sessions. Such therapies are likely to increase the chances of smoking cessation among smokers compared to self-help materials alone (RR: 1.88, 95% CI 1.52 to 2.33) (Stead, Carroll & Lancaster, 2017). However, when group therapy is compared with brief support from a health care provider, a small increase in cessation is evident (RR: 1.22, 95% CI 1.03 to 1.43). There is low-quality evidence of a benefit of group therapy compared to no-intervention controls, (RR: 2.60, 95% CI 1.80 to 3.76 I2). However, group therapy is not more effective than a similar intensity of individual counselling (RR: 0.99, 95% CI 0.76 to 1.28). Group therapy may be more beneficial than self-help, brief support, and no intervention controls. However, there is not enough evidence that group therapy is more beneficial than individual counselling (Stead, Carroll & Lancaster, 2017).

Nicotine replacement therapy

Among all tobacco ingredients, nicotine is the most addictive, but perhaps least harmful substance. Therefore, nicotine replacement therapy (NRT) is a highly attractive cessation tool, as it reduces motivation to smoke by countering the physiological and psychomotor effects of nicotine withdrawal, thus easing the transition to

sustained abstinence (West & Shiffman, 2001). Commercially formulated NRT is absorbed either through the skin in the form of transdermal patches or through oral mucosa in the form of chewing gum, nasal spray, inhalers and lozenges/tablets, all of which deliver nicotine more quickly than patches but less quickly than cigarettes.

All commercially available forms of NRT increase the likelihood of smoking cessation by about 50–60% (RR: 1.55, 95% CI 1.49 to 1.61) compared to placebo or non-NRT controls (Hartmann-Boyce et al., 2018). The relative risks of smoking cessation for various forms of NRTs are: nicotine gum 1.64 (95% CI 1.53 to 1.75), nicotine skin patch 1.52 (95% CI 1.32 to 1.74), nicotine inhaler 1.90 (95% CI 1.36 to 2.67), tablets and lozenges 1.52 (95% CI: 1.32 to 1.74) and nicotine nasal spray 2.02 (95% CI: 1.49 to 2.73) independent of duration of use, definition of abstinence, intensity of any additional behavioural support or the delivery settings (Hartmann-Boyce et al., 2018). Combinations of nicotine skin patches and other forms of NRTs (gum, lozenge, nasal spray) can also increase the chances of successful long-term cessation (RR: 1.25, 95% CI 1.15 to 1.36) compared to using a single type alone (Lindson et al., 2019).

Skin patches of NRT can be administered in several different doses and can deliver from 5-30 mg of nicotine over a 16 or 24-hour period (Hartmann-Boyce et al., 2018). The application of NRT skin patches for longer periods of time (16 hours versus 24 hours) does not benefit cessation rates (Lindson et al., 2019). Lindson et al. also found that some higher dose patches are more effective than lower doses; 21 mg are more effective than 14 mg patches (RR: 1.48, 95% CI 1.06 to 2.08). However, there is no benefit of 42/44 mg compared to 21/22 mg patches (RR: 1.09, 95% CI 0.93 to 1.29). Nicotine chewing gum is available in both 2 mg and 4 mg strengths. Evidence suggests that 4mg gum is more effective than 2mgs (RR: 1.43, 95% CI 1.12 to 1.83). Although, this was only the case in highly dependent smokers (Lindson et al., 2019).

The use of NRT is considered relatively safe with minor adverse events reported. These include skin sensitivity and irritation in patch users, irritation to the inside of the mouth from gum and tablets (Hartmann-Boyce et al, 2018). There is lack of evidence to support that NRT increases the risk of cardiovascular events, cancers, stroke or reproductive/developmental effects (Lee & Fariss, 2017), however a significant association with heart palpitations and chest pain (OR: 1.88, 95% CI 1.37 to 2.57) has been observed after NRT use (Hartmann-Boyce et al., 2018). NRT thus remains to be a safe and effective option for smoking cessation for those who require pharmacological support to quit and is also available to children over 12 and pregnant women in the UK (NHS, 2022).

Other pharmacotherapies

Varenicline and bupropion are the two most popular forms of pharmacotherapies used to aid smoking cessation in practice. In addition, other drugs like nortriptyline and cytisine have also been used. When smokers quit, they experience cravings to smoke and unpleasant mood changes due to the nicotine withdrawal. Varenicline is a nicotine receptor partial agonist that aims to reduce such symptoms. It counteracts the effects of nicotine on the neuronal acetylcholine receptors (nAChRs), based on the naturally occurring alkaloid compound cytisine (Papke & Heinemann, 1994; Slater et al, 2003). Nicotine withdrawal might precipitate depression, as nicotine appears to have anti-depressive properties. Bupropion (an anti-depressant) can substitute for this effect by influencing the neurotransmitters and receptors involved in nicotine addiction, thus aiding smokers in their efforts to quit (Benowitz & Peng, 2000; Kotlyar et al, 2001).

Nortriptyline (a tricyclic antidepressant) is believed to increase noradrenergic activity; it may be prescribed when first line treatments have been unsuccessful (Howes et al, 2020). Bupropion and nortriptyline both significantly increase the likelihood of smoking cessation (buproprion- RR: 1.64, 95% CI 1.52 to 1.77; nortriptyline- RR: 2.03, 95% CI 1.48 to 2.78) compared to placebo (Howes et al, 2020). Both of these drugs are considered to be equally effective and there is no evidence to suggest that they are more effective than NRT in achieving long term cessation (Howes et al, 2020).

Varenicline increases the chances of successful smoking cessation by more than two- to threefold (OR:

2.88, 95% CI: 2.40 to 3.47) at six months relative to placebo (Cahill et al, 2013). Besides standard dosage, a reduced dosage is also effective (RR: 1.25, 95% CI: 1.00 to 1.55) relative to the placebo for long-term smoking cessation, with reduced number and severity of side effects and achieving cessation rates roughly similar to NRT or bupropion (Cahill et al, 2016).

When compared to bupropion, varenicline significantly increases the chances of successful smoking cessation (OR: 1.59, 95% CI: 1.29 to 1.96, Cahill et al, 2016; OR: 1.49, 95% CI 1.02 to 2.18, Guo et al., 2022). Varenicline is also more effective over a single form of NRT (OR: 1.57, 95% CI 1.29-1.91), but not more effective than combination NRT (OR: 1.06, 95% CI 0.75 to 1.48) (Cahill et al, 2013). There is also limited evidence that varenicline might have a beneficial role in relapse prevention compared to placebo (RR: 1.24, 95% CI 1.08 to 1.42) at 52 weeks (Cahill et al, 2016).

In a recent systematic review varenicline alone or in combination with NRT or counselling were found to be superior in achieving smoking cessation compared to bupropion, nicotine replacement therapy, counselling, and placebo (Guo et al., 2022). However, varenicline alone was not more effective in achieving smoking cessation compared with NRT plus counselling (OR: 0.93, 95% CI: 0.49 to 1.75), bupropion plus counselling (OR: 1.34, 95% CI: 0.63 to 2.84), or cytisine (OR: 0.93, 95% CI: 0.62 to 1.39).

Varenicline and bupropion together provide greater benefits when prescribing both together compared with varenicline alone (RR: 1.15, 95% CI 1.01 to 1.30). The benefit was observed mainly in highly dependent smokers (RR: 1.63, 95% CI 1.29 to 2.06) and heavy smokers (RR: 1.51, 95% CI 1.22 to 1.87) rather than Individuals with low nicotine dependence (RR: 0.98, 95% CI 0.81 to 1.19) or low cigarette consumption (RR: 0.98, 95% CI 0.80 to 1.21, P = 0.252). Varenicline, or varenicline and bupropion combined are therefore a good treatment option to consider for heavy dependent smokers.

The adverse events with bupropion use include psychiatric symptoms, anxiety and Insomnia (Howes et al, 2020). The adverse events reported with varenicline use mainly include mild to moderate levels of nausea. However, there is inconclusive evidence suggesting links with serious adverse events including depressed mood, agitation, suicidal thinking and cardiovascular problems (Cahill et al, 2016). Although, a study from Thomas et al. (2013) found that neither varenicline nor bupropion increased the risk of fatal or non-fatal self-harm or increased the risk of depression treated with antidepressants compared with NRT alone. When used together, combination treatment of varenicline and bupropion has been associated with an Increase in anxiety and insomnia when compared with varenicline monotherapy (Zhong et al., 2019).

The use of cytisine is shown to have a beneficial effect in achieving smoking cessation compared to placebo (RR: 3.98, 95% CI 2.07 - 7.87). Cytisine use also demonstrated benefit when compared to NRT (RR: 1.43, 95% CI 1.13 - 1.80) with abstinence rates of 21.8% vs 15.3% at six months (Cahill et al, 2016). Adverse events with cytisine use include Gastro-Intestinal disorders, sleep disorders, nausea and vomiting; the rates for these adverse events are significantly higher than placebo (West et al, 2011) and NRT (Walker et al, 2014).

There is insufficient evidence to support the use of other antidepressive agents (Mono Amine Oxidase inhibitors, Selective Serotonin reuptake inhibitors, St. John's wort, venlafaxine, and dietary supplement S-Adenosyl-L-Methionine (SAMe) for smoking cessation (Howes et al, 2020).

Electronic cigarettes

Electronic cigarettes (ECs) or electronic nicotine delivery systems (ENDs) are electronic devices that heat a liquid into an aerosol for inhalation. The liquid usually comprises propylene glycol and glycerol, with or without nicotine and flavours (Hartman-Boyce et al, 2016). There is wide variation between different types of ECs; the more recent generations of ECs have a very similar nicotine delivery profile to combustible cigarettes.

The popularity of ECs has grown since they appeared on the market in 2006 and in 2021 the prevalence in England was 7% (Office for Health Improvement and Disparities, 2022). ECs are considered a less harmful

alternative to combustible cigarettes and promoted as a tool for tobacco harm reduction in the UK (Britton et al, 2016; McNeill et al, 2015). These are therefore a popular choice for smokers to aid quitting and research suggests that their increased prevalence in England is positively associated with the increase in quit rates (Beard, et al., 2020).

ECs containing nicotine have been found to be more effective than ECs without. A Cochrane review by Hartmann- Boyce et al. (2016) found that using an EC containing nicotine increased the chances of quitting smoking in the long term compared to using an EC without nicotine (RR: 2.29, 95%CI 1.05 to 4.96; Hartman -Boyce et al, 2016). Further to this, a more recent systematic review by Chan et al. (2021) found that those who use ECs containing nicotine were more likely to remain abstinent from smoking than those in the control condition, which was either a no-nicotine EC or usual care (RR: 2.08, 97.5% CI 1.39 to 3.15). Those who used an e-cigarette were also more likely to quit than those who used NRT (pooled RR: 1.49, 97.5% CI 1.04 - 2.14).

Adverse events commonly associated with EC use are mouth or throat irritation, anxiety, depressed mood, nausea, and insomnia (Liu et al., 2018). Hartmann -Boyce et al., 2016 found that smokers who used ECs short- to mid-term (for two years or less) had an increased health risk compared to smokers who did not use ECs.

Evidence suggests that EC use is effective in achieving smoking cessation compared to usual care and also compared with NRT. ECs containing nicotine seem to be more effective than ECs without nicotine.

Effective combinations

Behavioural support and pharmacotherapies individually aid smokers in successful attempts to stop smoking. Many guidelines recommend combining the two interventions to assist people in stopping smoking, but there are some combinations that are more effective than others, and some that work better in certain settings than in others.

A combination of behavioural support and pharmacotherapy can increase the chances of successful smoking cessation by 70–100% (RR: 1.83, 95% CI 1.68 to1.98) compared to controls receiving brief advice, usual care or less intensive behavioural support (Stead et al., 2016). Combination therapies demonstrate a greater benefit when delivered in health care settings (RR: 1.97, 95% CI 1.79 to2.18) than when used in community-based settings (RR: 1.53, 95% CI 1.33 to 1.76) (Stead et al., 2016).

Using intensive behavioural support (face-to-face or via telephone) as an adjunct to pharmacotherapy increases the chances of successful smoking cessation by about 10-40% (face-to-face - RR: 1.12, 95% CI 1.04 to 1.20; via telephone - RR: 1.28, 95% CI 1.17 to 1.41) relative to controls using pharmacotherapy alone (Stead et al., 2015). Moreover, increasing the intensity of behavioural support in people attempting to stop smoking with pharmacotherapy increases the chances of successful smoking cessation by another 10-25% (RR: 1.17, 95% CI 1.11 to 1.24) relative to less intensive behavioural support. However, there is insufficient evidence to support any beneficial effect of behavioural support when added to nortriptyline or varenicline (Stead et al., 2015).

Smoking cessation in pregnancy

Given the health risks associated with smoking during pregnancy including, though now limited to higher rates of miscarriage, low birth weight, higher rates of stillbirth, respiratory problems, asthma (NCSCT, 2019) providing smoking cessation support to pregnant women is important. The NCSCT provide very comprehensive advice on the steps to take (NCSCT, 2019). When health professionals explain to pregnant women that NRT and e-cigarettes are safer than tobacco this can positively affect their willingness to switch to these products during pregnancy (Campbell et al., 2020).

Behaviour support in the form of counselling increases the likelihood of smoking cessation in pregnancy compared with usual care (RR: 1.44, 95% CI 1.19 to 1.73) and compared to lower intensity (brief) interventions (RR: 1.25, 95% CI 1.07 to 1.47)(Chamberlain et al., 2017). Chamberlian et al also found weak evidence that health

education is effective than usual care (RR: 1.59, 95% CI 0.99 to 2.55), that feedback (about health status of mother and baby) increases smoking cessation success when compared with usual care or in conjunction with other strategies, such as counselling (RR: 4.39, 95% CI 1.89 to 10.21), and that incentive-based interventions are effective when compared with an alternative non incentive intervention (RR: 2.36, 95% CI 1.36 to 4.09).

The addition of NRT to behavioural support may be an effective strategy to promote smoking cessation in pregnant women (RR: 1.37, 95% CI 1.08 to 1.74), however, the interpretation should be made with caution, as the effect is lower in placebo RCTs compared to non-placebo RCTs (P = 0.008) (Claire et al., 2020). Claire et al. also found no benefit of bupropion compared to placebo controls (RR: 0.74, 95% CI: 0.21 to 2.64).

Smoking cessation in people with a mental Illness

Providing smoking cessation support for people with a mental Illness Is a national priority (NICE, 2013). With that said, there remains to be a paucity of evidence indicating which methods are most effective. Specialist smoking cessation support programmes which were specially designed for people with a mental illness have shown no evidence of benefit (Peckham et al., 2017).

Evidence does suggest that Bupropion significantly improves quit rates of those with a serious mental Illness in the medium term (up to six months - RR: 2.93, 95% CI 1.61 to 5.34) and long term (over 6 six months - RR: 3.04, 95% CI 1.10 to 8.42) and the addition of varenicline improved quit rates significantly in the medium term (RR: 4.13, 95% CI 1.36 to 12.53; Peckham et al., 2017). Varenicline has also been found to be significantly more effective than placebo for smoking cessation and reduction in people with severe mental illness with no clear evidence of an increased risk of adverse events compared with placebo (Wu et al., 2016).

It is uncertain whether ECs are effective for smoking cessation in vulnerable populations, including those who misuse substances, have a mental illness, are homeless, or are involved with the criminal justice system (Gentry et al., 2019) this Is due to a lack of, and low-quality evidence.

Smoking cessation in people who use smokeless tobacco

Smokeless tobacco is a form of tobacco consumed without combustion/burning, mainly used in the South-East Asian population (Nethan et al., 2018). The NHS provide guidance which states that smokeless tobacco (Including paan, betel quid and chewing tobacco) is not a safer way to use tobacco and expert cessation advice should be provided similarly to smoking tobacco (NHS, 2022).

There is limited information available on smokeless tobacco cessation interventions. However, behavioural interventions seem to show high cessation efficacy, with risk ratios ranging from RR: 0.87 (CI 0.7, to 1.09] to 3.84 (CI 2.33 to 6.33). Regular telephone support/quitlines, nicotine lozenges and varenicline have also proved to be efficacious, however evidence in this area is limited (Nethan et al., 2018).

Adjunct aids

High certainty evidence suggests that incentives improve smoking cessation rates (Notley et al., 2019). There is also moderate-certainty evidence, limited by some concerns about risks of bias, that incentive schemes conducted among pregnant smokers improve smoking cessation rates. Further research is required in this area to explore low versus high cash incentives and other smoking populations.

The role of partner support in smoking cessation remains inconclusive. Evidence suggests that there is no impact on increasing long-term abstinence from smoking (Faseru et al.,2018). However, most interventions failed to increase support from partners for smoking cessation therefore more appropriate interventions that increase partner support are required in this area before we can understand role of partner support.

Recently mindfulness techniques have been investigated as a candidate to aid smoking cessation.

However, a recent systematic review by Jackson et al. (2022) did not detect a clear benefit of mindfulness-based smoking cessation interventions for increasing quit rates. Evidence was graded low quality and very low certainty due to risk of bias, inconsistency, and imprecision. Therefore, more high-quality trials are required in this area to better understand the role of mindfulness techniques in smoking cessation.

There is insufficient evidence to suggest a possible beneficial role of smoking cessation and weight gain therapies in limiting post-cessation weight gain in people stopping smoking in the long term (Hartmann-Boyce et al., 2021) and also of exercise interventions aiming to increase cessation rates among smokers (Ussher et al, 2019).

Conclusions

The research on smoking cessation suggests that different therapies and their combinations work better in certain settings than in others and need to be tailored according to the patient type and their preferences. Overall, even brief advice by a trained health professional is beneficial in achieving smoking cessation in a patient presenting to health services, but to a lesser extent than behavioural support alone or in combination with pharmacotherapies (nicotine replacement therapies (NRTs), bupropion and varenicline). Individual pharmacotherapies are effective for smoking cessation, however, these in combination with behavioural support are found to be more effective. These therapies are also seen to work better when delivered in health care settings relative to community settings. Combination NRTs (oral or skin patch) are observed to be particularly helpful in promoting cessation among heavy smokers compared to light smokers. ECs are a popular and effective method for smoking cessation and those containing nicotine are more effective than non-nicotine ECs. The role of remote approaches, such as smart phone apps, internet-based methods and text messaging is unclear.

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Table 1: An evidence-based guide to smoking cessation therapies in practice

Sufficient evidence/ Definitely beneficial	• Brief advice by trained professionals in health care settings over no advice • Individual behavioural therapy by trained health workers over brief advice • Group behavioural therapy over self-help materials • NRTs over placebo in smokers motivated to quit • Combination of NRTs (skin patches and oral forms) among heavy smokers over single NRT • Varenicline (standard dose), bupropion, nortryptyline and cytisine over placebo • Varenicline (low dose) over placebo with fewer side effects. • Varenicline over buproprion and single NRT • Combinations of behavioural support and pharmacotherapy over brief advice or usual care • Combination therapy of behavioural support and pharmacotherapy in health care settings vs. community-based settings • Intensive behavioural support as an adjunct to pharmacotherapy • Increasing intensity of behavioural support in people using pharmacotherapy over same level of intensity • Telephone counselling - multiple sessions of proactive telephone counselling • E-cigarettes with nicotine vs non-nicotine placebo • Internet based support interactive and tailored
Insufficient evidence/ Probably beneficial	• Individual intensive behavioural support over less intense behavioural interventions • Group behavioural support interventions over brief advice • NRT use among lighter smokers (< 10-15 cigarettes per day) over placebo • NRT use pre-quit over NRT starting on quit day • NRT vs placebo in smokers who are not willing to quit • NRT for longer duration or in higher concentrations compared to standard use • Use of nicotine patches beyond 8 weeks of therapy • One form of NRT over another • NRT or partner support in pregnancy • Varenicline over placebo for relapse prevention • Combination of behavioural support with varenicline or nortriptyline • Nicotine assisted reduction to stop (NARS) vs. abrupt cessation • NRT use in pregnancy • E-cigarette use in pregnancy • Bupropion and Varenicline for use in people with s serious mental illness
Unknown evidence/ unknown benefit	• Group behavioural therapy over individual behavioural therapy • Varenicline or bupropion use in pregnancy • Smart phone application behaviour support • E-cigarette use for people with a serious mental illness

CONCLUSIONS/ KEY POINTS

- Brief advice by a healthcare professional is beneficial in achieving smoking cessation
- Intensive behavioural support alone and in combination with pharmacotherapy is effective in promoting smoking cessation

- Pharmacotherapies (NRTs, bupropion, nortriptyline, varenicline and cytisine) are individually effective in promoting smoking cessation
- Combination of NRTs (slow and rapid release) are effective for promoting cessation among harder smokers
- Combination therapies of behavioural support and pharmacotherapy are more effective than pharmacotherapies alone in promoting cessation among smokers when delivered in health care settings
- electronic cigarettes are beneficial for smoking cessation

Useful resources

National Institute for Health and Care Excellence 2008. Smoking cessation services in primary care, pharmacies, local authorities and workplaces, particularly for manual working groups, pregnant women and hard to reach communities. Public Health Guidance. No. 10, February. NICE, London.