**Supplementary Table 1: Barriers and facilitators to engagement in smoking cessation services and smoking cessation amongst homeless adult smokers (n=42 studies)**

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| **Authors** | **Sample** | **Barriers** | **Facilitators** |
| Arangua et al (2007) | 71 long-term transitional shelters, USA | Enforcement of a smoke-free environment may be more difficult at larger facilities or facilities without experience in treatment for substance abuse | Facilities recognise the importance of intervening, and highly receptive to tobacco control efforts designed to reduce smoking prevalence |
| Baggett et al (2016) | 306 homeless smokers from Boston Health Care for the Homeless Programme, USA | Screening positive for PTSD significantly associated with smoking to reduce negative affect, smoking for positive social effects, and smoking for weight control |  |
| Baggett et al (2018 c) | 306 homeless smokers (and 75 from an RCT) from Boston Health Care for the Homeless Programme, USA | Problems with subsistence was associated with perceived barriers for quitting and amongst those enrolled in the RCT higher levels of subsistence difficulties was associated with lower odds of abstinence at follow-up (compared to those with lower problems with subsistence). |  |
| Bonevski et al (2012) | 12 homeless clients currently receiving accommodation support at the Homeless outreach centre as part of ‘Phone for Health' program. |  | Convenient, useful and practical program |
| Buckley et al (2017) | 139 Current smoking residents interested in smoking cessation at a homeless shelter in Phoenix, USA | Reasons for failed attempts to contact, indicates the issue of the ability of this population to contact /access telephone quitline support | Reasons for wanting to quit included health (85%, n=118), financial (45%, n=53) and family (27%, n=38) |
| Businelle et al(2014a) | 68 Homeless smokers, enrolled into a shelter-based smoking cessation program and residence in the transitional shelter | Long waiting lines to see the clinic physician and take a shuttle to the pharmacy to fill their smoking cessation medication prescriptions. | Offering small financial incentive |
| Businelle et al (2013) | 57 homeless smokers recruited into a tobacco cessation clinic at a homeless shelter, USA | More mental health problems, surrounded by more smokers, exposed to more stressors and discrimination, lower motivation and self-efficacy |  |
| Businelle, et al (2014b) | 57 homeless adults accessing shelter-based smoking cessation clinic | Declining negative affect, restlessness and stress predicted quit date abstinence |  |
| Businelle et al (2015) | 394 homeless adults who had spent the previous night at the large homeless shelter, USA. |  | Smoking ban in shelter resulted in a reduction in expired CO following ban. |
| Butler et al (2002) | 598 smokers from an inner-city health centre | Emotional reasons for smoking ranked higher than the food related reasons. 66% reported they were depressed and there was a higher rate of illicit drug use, earlier age of initiation of smoking the higher consumption of cigarettes |  |
| Carpenter, et al (2015) | 20 homeless veteran smokers via Veterans Medical Centre, USA |  | mCM may be useful adjunctive smoking cessation treatment component, compensation strongly correlated with abstinence |
| Chen et al (2016) | 100 homeless from homeless shelter and home of free medical clinic serving regional homeless and underinsured individuals, USA | Subjective barriers reported excessive stress and use to relieve anxiety, followed by cravings, lack of resources for cessation programs/support and not viewing cessation as important goal and peer pressure | Nicotine replacement agent most frequently chosen as having highest likelihood of facilitating cessation (35%) |
| Collins, et al (2018) | 25 homeless smokers from an emergency shelter, USA | Did not feel simple advice to quit was a helpful approach, without additional strategies, treatment planning or ongoing support; viewed NRT negatively, concerns varied and included lack of affordability, unpleasant side effects, low nicotine availability; none viewed antismoking regulations positively, led to shame and hardship as well as challenges. | Providers use a non-judgemental, compassionate style, offer more support, discuss a broader menu of options, including non-abstinence-based ways to reduce smoking-related harm and improve health related quality of life, providing info. about relative risks of smoking and benefits of alternative strategies to obtaining nicotine and avoiding smoking; behaviours that primarily distracted from use, helping participants to engage in other more meaningful activities, behavioural strategies suggested physical fitness, creative activities and hobbies, hand-to-mouth behaviours, screen distraction |
| Connor et al (2002) | 236 homeless adults from Homeless shelters, Residential substance abuse sites, homeless service facilities, USA | In order of prevalence - craving, stress or mood swings, being around others who smoke, believing no one would support their cessation attempt, fear of weight gain | Persons significantly more likely to be ready to quit if they had tried to quit in past and had some social support to quit smoking |
| Connor et al (2014) | 260 homeless adults via general medical clinic (inc. smoking cessation clinic which offers free walk-in clinic, USA | Initial attendance at smoking cessation clinic (once attending no additional barriers to those who were housed) |  |
| Dawkins et al (2019) | 283 homeless smokers accessing support services in four sites across the UK | High nicotine dependence was observed, start-up cost of purchasing harm reduction alternatives (e-cigarettes) was measured as one barrier for trying alternatives. Preferring smoking over vaping was common. |  |
| Garey et al (2015) | 245 homeless adult smokers from transitional shelter in Dallas, USA |  | Higher ratings on SSS associated with greater readiness to quit smoking |
| Garner & Ratschen (2013) | 15 homeless smokers accessing a harm reduction service in Nottingham, UK | Poor knowledge/awareness of smoking related harms; engagement in high risk smoking behaviours; lack of support or active discouragement by practitioners; regarded as relatively minor risk in context of generally challenging and risky life circumstances; acquisition of contraband products to get around affordability; psychosocial influence of peers smoking behaviours results low confidence; given cigarettes as reward of acknowledgment for jobs at service. | A majority reported motivation and confidence to quit; frequenting hostels with smoking restrictions in communal areas helpful in assisting reduction consumption; suggested offers to stop smoking should be more visible and available in a variety of settings accessed by homeless |
| Goldade et al (2013) | 430 homeless smokers willing to use nicotine patches and enrolled in a community-based RCT from homeless emergency shelters and transitional housing sites, USA |  | Cessation more likely for smokers who knew > 5 quitters compared those who know no quitters |
| Goldade et al (2012) | 4570 homeless persons completing a survey at emergency shelters, transitional housing, open encampments across 80 cities in Minnesota, USA |  | Successful quitters (former smokers) more likely to express interest in helping current smokers quit - potential peer support |
| Hammet et al (2015) | As above | Veteran status and resulting issues that comes with veteran status (i.e. more PTSD, alcohol/drug dependence, acute and chronic health conditions. |  |
| Harris et al (2019) | 421 homeless smokers entering a supportive housing program in Los Angeles, USA | Illicit substance use associated with lower likelihood of quit attempts. | Lifetime depression associated with higher odds of quit attempt in the past 3 months. |
| Kish et al (2015) | 178 adult homeless cigarette smokers from a homeless shelter, USA | Greater stress in concurrent users. |  |
| Maddox & Segan (2017) | 26 nurses and 104 homeless clients from the Royal District Nursing Service Homeless Persons Program, Melbourne, Australia | Nurses underestimated client interest in quitting or reduction (only estimated 33%), only 42% recorded clients smoking status and 15% asked about interest in reducing quitting. Smoking status doesn't appear to be routinely assessed, and misperceptions about client interest |  |
| Niesler et al (2018) | 445 smokers across homeless shelters in Oklahoma, USA |  | Perceived social support appears to attenuate the inverse relationship between heaviness of smoking and intentional quit attempts lasting longer than 24 hours. |
| Nguyen, et al (2015) | 237 homeless daily smokers from a single homeless shelter, Dallas, USA | Light smokers less likely to believe medications would be effective for quitting relative to moderate/heavy smokers, and more likely to believe group counselling most effective. Most highly endorsed craving as a barrier to cessation. Others reported being around other smokers, habit, coping with life stress, avoiding friends who smoke |  |
| Okuyemi, et al (2006) | 62 homeless smokers from homeless service facilities | Pervasiveness and social acceptance of tobacco use in homeless settings contributed to smoking behaviours. High levels of boredom and stress. |  |
| Porter et al (2017) | 13 Homeless adult smokers and 9 staff from homeless shelter, South Carolina, USA | Stress from being homeless was a barrier to quitting.  Relapse during times of stress or depression.  Smoking seen as one of few pleasures still available.  Smoking provided means socialisation at the shelter. No preferred method and scepticism over effectiveness since many been unsuccessful when tried with these methods.     Poor dental care issue for NRT gum.  Staff do not feel smoking cessation was as much of a priority for homeless residents.  55% not encouraged cessation, staff did not feel they were in a position to offer, felt unqualified to provide advice. Few shelter staff are aware of availability of cessation medications in their service, lack of awareness any local or community resources for cessation.  Perceived importance amongst staff. |  |
| Power et al (2015) | 144 homeless men of the Quit Smoking Clinic (QSC) inner city homeless shelter, Australia | 77% reported smoking helped with symptoms of mental illness, with 66% diagnosed with a psychiatric disorder. Reports of smoking to alleviate mental illness and feelings of anxiety, living in a milieu in which tobacco smoking is ubiquitous, smoking to avoid withdrawal |  |
| Pratt et al (2019) | 40 homeless smokers enrolled in a trial in two Urban homeless shelters in US | Refraining from drinking (alcohol) and smoking described as difficult when in and around the homeless shelter. Many described preferring to cut down as opposed to quitting. | Smoking abstinence was considered to be beneficial for finding time and motivation to focus on housing (though not directly measured). |
| Reitzel et al (2014) | 57 homeless smokers enrolled in a cessation programme via a transitional homeless shelter, USA | Lower subjective social status -US, predicted increased risk of relapse or inability to quit at all |  |
| Reitzel et al (2014b) | 427 homeless smokers from shelters in Minneapolis/St Pauls, Minnesota, USA enrolled in a smoking cessation RCT (Okuyemi et al, 2013) | Smoking was not associated with the number of days of cocaine, marijuana/hashish, heroin or any drug use. | Smoking abstinence was associated with fewer alcohol drinking days, fewer alcohol drinks consumed on drinking days and lower odds of heavy drinking. |
| Robinson et al (2016) | 430 homeless smokers from shelters in Minneapolis/St Pauls, Minnesota, USA enrolled in a smoking cessation RCT (Okuyemi et al, 2013) | Homeless smokers with depression symptoms reported higher levels of hopelessness, perceived stress and craving, but abstinence levels no different to those with non. |  |
| Segan, Maddox & Borland (2015) | 49 homeless adult smokers from Homeless persons program offering nurse-delivered smoking cessation, Australia | High prevalence of mental health and substance use |  |
| Shelley, et al (2010) | 58 homeless adult smokers enrolled on an outpatient substance abuse treatment program or from a transitional residential treatment program for homeless clients, USA | Many participants had comorbid mental health conditions: 28% reported a history of schizophrenia; 51%, depression; 30% anxiety | Adherence rates for varenicline and bupropion were high, with clients using the medication for an average of 6 weeks for varenicline and 5 weeks for bupropion. In contrast, adherence to NRT was lower, with rates of medication use ranging from 3 weeks for the lozenge to 2.1 weeks for the patch. |
| Stewart et al (2015) | 33 homeless smoking adult parents from Family shelters, USA | Ubiquity of cigarette smoking, its central role in social interactions in the family shelter setting, and its importance as a coping mechanism; | Homeless parents may be uniquely motivated to quit because of their children |
| Taylor et al (2016) | 394 homeless adults from a shelter, USA | High percentage of high-risk drinkers; poor lifestyle (diet, physical activity) |  |
| Tsai & Rosenheck (2012) | 754 homeless adults via mental health, primary care, and supported housing services at 11 USA sites | Regular smokers reported more years of lifetime incarceration, an increased risk of being diagnosed with alcohol abuse or dependence, a diagnosis of drug abuse or dependence, a dual diagnosis, and higher scores on the ASI drug subscale | The self-limiting smokers were older than the regular smokers |
| Vijayaraghavan, Guydish & Pierce, (2016 b) | 12 staff and 46 homeless adults at transitional shelters, USA | Incarceration and were more likely to be white than the self-limiting smokers; and the self-limiting smokers reported more years of incarceration than the non-smokers. Non-smokers had higher SF-12 physical component scores (indicating better health) than self-limiting and regular smokers. | Increase in staff knowledge on  a) harms of tobacco,  b) support available for their clients |
| Vijayaraghavan, Hurst & Pierce (2016 c) | 31 Directors and 17 staff from emergency (n=12) and transitional (n=40) homeless shelters in San Diego County, USA | Staff not prioritising smoking, lack of knowledge in training techniques, not asking about smoking at admission |  |
| Vijayaraghavan et al (2019) | 472 current smokers from transitional shelters in Oaklahoma City, USA. | Those smokers without an income purchasing a pack of cigarettes or more per week reported fewer quit attempts than those with an income. For those with an income, level of purchasing was not associated with quit attempts. |  |
| Vijayaraghavan & Pierce (2015) | 170 ever smoker homeless adults from an emergency shelter, USA |  | Facility policies were part of the main reasons for smoking cessation |

USA= United States of America; PTSD = Post-Traumatic Stress Disorder; UC = usual care; CM = contingency management; mCM = mobile Contingency Management; MDD = Major Depressive Disorder; RCT = Randomised Controlled Trial; SSS = Subjective Social Status; UK= United Kingdom; NRT = Nicotine Replacement Therapy; QSC = Quit Smoking Clinic; ITT = Intention to Treat; ASI = Addiction Severity Index