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The motivators and barriers to a smoke-free home among disadvantaged caregivers:

identifying the positive levers for change.

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Abstract

Introduction:

The aims of this study were to explore home smoking behaviours and the motivators and barriers to smoke-free homes, among a group of disadvantaged caregivers for young children, and to identify the positive levers that healthcare professionals can utilise when supporting smoking behaviour change.

Methods:

In-depth qualitative interviews were conducted between July and September 2009, with 22 disadvantaged smoking caregivers, accessing Children's Centre Services in Nottingham, UK. Interviews were audio-recorded and transcribed verbatim. Data were coded and analysed thematically to identify emergent main and sub themes.

Results:

Caregivers had some general understanding of the dangers of second hand smoke, but their knowledge appeared incomplete and confused. All interviewees described rules around smoking in the home, however, these tended to be transient and fluid and unlikely to be effective. Caregivers were often living in difficult and complex circumstances and experienced significant barriers to creating a smoke-free home. The motivators for change were more strongly linked to house decor and smell, than children's health suggesting that visible evidence of the harm done by second hand smoke to children might help promote smoke-free homes.

Conclusions:

Findings suggest that further tailored information on the effect of second hand smoke is required, but to instigate caregiver behaviour change, providing demonstrable evidence of

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Introduction

Globally, 40% of children are regularly exposed to second hand smoke (SHS) (Oberg 2011). In the UK, around two million children are regularly exposed to SHS and close to half of all children live in households with at least one smoker. Exposure to SHS has been causally linked with a number of childhood morbidities including upper and lower respiratory tract infections, middle ear infections, sudden infant death syndrome, asthma and wheeze symptoms and bacterial meningitis (Cook & Strachan, 1999; Jones et al., 2011; Royal College of Physicians, 2010). Children are at greater risk from exposure to SHS compared to adults given their higher respiration rate (Willers, Skarping, Dalene, & Skerfving, 1995) and less well developed airways, lungs and immune system. A recent report by the Royal College of Physicians (2010) estimates that childhood cases of disease, related specifically to SHS exposure generates an additional 300 000 UK general practice consultations and 9500 hospital admissions each year. Caregiver smoking in the home is therefore a common but preventable source of childhood morbidity.

The home is the primary source of SHS exposure in children (Ashley & Ferrence, 1998; Wipfli et al., 2008) and although exposure in England has declined markedly over the previous decade (Sims et al., 2010), 63% of children who live with one parent who smokes and 79% of children who live with both parents who smoke, are still regularly exposed to SHS in the home (Jarvis, Mindell, Gilmore, Feyerabend, & West, 2009). Smoking by caregivers (parents and other carers such as grandparents) and whether smoking is allowed in the home are the

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two main determinants of a child's level of exposure to SHS (Jarvis, et al., 2009; Sims, et al., 2010). Exposure is highest for the most deprived children because their caregivers are more likely to smoke and smoke more heavily (Jarvis & Wardle, 2005; Sims, et al., 2010). In addition, disadvantaged smokers are more likely to perceive smoking as a normative social behaviour (Wallace-Bell, 2003), smoke in the presence of children (Johansson, Halling, & Hermansson, 2003) and smoke in domestic settings such as in homes and cars (Bolte & Fromme, 2009). In addition, lone parents, in particular lone mothers living in social disadvantage, are more likely to smoke (Rahkonen, Laaksonen, & Karvonen, 2005), smoke around their children and expose their children to SHS.

Children's exposure to SHS is therefore an ongoing and significant public health burden. However, any measure to reduce or prevent smoking in the home has social and political implications, in that it is difficult to implement, monitor, and evaluate behaviour change within private residential settings (Gehrman & Hovell, 2003), as well as being particularly difficult to enforce. The most reliable way to reduce SHS exposure in children would be to encourage caregivers to quit smoking altogether. However, for those caregivers who cannot or will not quit, the next best option is to promote homes that are completely smoke-free. Nevertheless, there is evidence to suggest that some caregivers, particularly those who are disadvantaged, may face significant barriers when trying to implement and maintain a SFH for their children, given the substantial behaviour change that may be required (Blackburn et al., 2003; Phillips, Amos, Ritchie, Cunningham-Burley, & Martin, 2007; Robinson, 2008; Robinson & Kirkcaldy, 2007a, 2007b). For some caregivers, in particular women, the ability to initiate and maintain a smoke-free environment for their children competes with their other caring and life responsibilities, which is further restricted by the physical environment

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in which they live (Robinson & Kirkcaldy, 2007a, 2007b). The process of implementing and maintaining a smoke-free home for some women can involve the need for forceful negotiation with other members of the household and visitors, and the success of these negotiations relies heavily upon the personality traits of the caregivers making the request and those who are receiving it (Robinson, Ritchie, Amos, Greaves, & Cunningham-Burley, 2011).

Whilst these studies have provided a useful insight into attitudes and behaviours around smoking in the home, they have not explored in great detail how embedded smoking behaviours within households influence a caregiver's ability to effect change. Therefore, this study, which forms part of a larger piece of work developing a health care professional (HCP) intervention on SFH, explores in greater detail the barriers and motivators around achieving a SFH, among a very disadvantaged group of caregivers and builds on previous work by aiming to identify the positive levers for change that HCPs can utilise when supporting caregivers and their families in changing their current smoking behaviours.

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Methods

Given the sensitivity of discussing smoking around children, qualitative one to one interviews were chosen as the appropriate method of research to provide an empathetic and supportive environment in which caregivers could openly discuss their smoking behaviour. Participants were recruited from four (of 16) randomly selected Sure Start Children's Centres (CCs) across Nottingham City. Children's Centres are free to join and offer a range of free or subsidised activities and support services for low-income caregivers with children under five years of age. We chose to recruit via CCs as the caregiver smoking rate is known to be high in the demographic groups who access these services. Given that we were

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trying to recruit socio-economically disadvantaged smoking caregivers, often with a number of young children to care for, it was anticipated that recruitment may be particularly difficult (Parry, Bancroft, Gnich, & Amos, 2001). To help aid recruitment, each participant was offered an inconvenience allowance in the form of a £15 retail voucher as compensation for the time taken to participate and for having to arrange child care. To be eligible for interview, participants needed to be over 16 years of age, a smoker, have at least one child under the age of five years living with them the majority of the time, and currently or have recently smoked inside the home.

Twenty-two semi-structured one to one interviews were conducted between July and September 2009. Of the 22 interviews, 16 were with mothers, one with a grandmother and five with fathers. Of the 16 mothers and one grandmother that participated, eight were married or living with a partner, one was divorced and eight were single; two of the mothers were employed, five were housewives, nine were unemployed and one was retired. Of the five fathers interviewed, four were married or living with partners and one was single; one was employed and the remainder were unemployed. On average, there were two children living in each household interviewed (range, one through six) and in 62% of the households there were two or more adults smokers living in the home.

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An interview guide was initially developed from the literature and subsequently through discussions with HCPs working with smoking caregivers in Nottingham and within the research team. Interviews took place in a private room at the CC where the caregiver was accessing services and explored topics including knowledge of the risks of SHS, attitudes and behaviour to smoking in the home, and the hypothetical motivators and barriers to creating a SFH. A questionnaire was administered to each participant at the end of the interview to

ascertain basic demographic and smoking information. Ethical approval for this study was sort and gained from the University of Nottingham Medical School Ethics Committee (ref: A/5/2009).

Analysis

Data analysis was ongoing throughout the period of data collection and regular discussions were held between the two interviewers (LLJ and OA) and within the research team. The interview topic guide was reviewed and revised following discussion and reflection by both interviewers as the study progressed, to ensure that newly emerging topics were incorporated into future interviews and to improve the relevance and importance of original topics. With participants' written consent, each interview was digitally audio-recorded and transcribed verbatim by an external specialist transcription company. Each transcript was carefully checked by for transcription errors to ensure data quality. NVivo software version 8 (QSR International Pty Ltd, Australia) was used to facilitate the analysis of the transcripts. Data were analysed thematically, generating an open coding framework, utilising the six phase process outlined by Braun and Clarke (2006). OA and LLJ independently reviewed each transcript and initial ideas were noted that identified preliminary codes. These codes were then grouped into potentially relevant themes and discussed between the two researchers conducting the analysis and with the wider research team. Further analysis clarified the specific nature of each theme leading to the development of names and descriptions. Following agreement of the themes identified, extracts were taken from the transcripts to exemplify each theme in order to reflect the experiences of each of the participants.

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Deleted: LLJ and OA independently developed an open coding framework, which was checked for agreement and refined as appropriate, before being discussed within the research team. All data were then coded and analysed thematically to identify emergent main and sub themes, and to explore data trends and patterns.¶

Findings

Knowledge, attitudes and beliefs

Caregivers were asked to discuss their knowledge of the harms of SHS both to their own health and that of their children. All of the caregivers were aware, to some extent, of the risk of smoking, however, only a small number of caregivers could link SHS exposure to specific diseases or chronic conditions in children, the most commonly identified being asthma (Box 1, quote a). Several caregivers were confused and frustrated by their lack of knowledge and sought answers from the researcher in an attempt to clarify their own knowledge, and stated that external sources of information such as from HCPs and mass media campaigns lacked clarity and did not offer links between SHS exposure and specific childhood diseases (Box 1, quotes b-c). When probed, some caregivers appeared unwilling to acknowledge that SHS exposure is associated with poor health outcomes in children. In some cases, caregivers were reluctant to discuss the effects of SHS exposure and their uneasiness was demonstrated by avoiding eye contact with the interviewer and defensive body language. Several caregivers articulated views that the wider environment may be more of a threat, in comparison to the risk of tobacco and SHS, to their own health and that of their children and thus felt justified in continuing and maintaining their current smoking behaviours (Box 1, quote d). Caregivers justified their smoking behaviour by disregarding medical knowledge surrounding the risks of tobacco use and SHS exposure. This was rationalised by referring to the discrepancy between their own personal experiences, those of their family and peer network and the medical information presented in the media and by HCPs. It appears that a rejection of the pregnancy related smoking messages from HCPs' leads to a rejection of the SHS smoking and child health messages post delivery (Box 1, quote e). When probed to see if they would like more information about the dangers of SHS exposure there were mixed reactions, with some caregivers admitting that it may be helpful and may lead to changes in smoking behaviour, whilst other caregivers rationalised that

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they would feel even worse about smoking around the children if they fully understood the risks of SHS exposure and therefore they would prefer not to know (Box 1, quotes f-g).

Fluidity and complexity of household smoking rules

All caregivers described rules around smoking in the home, typically restricting smoking to one or two rooms (Box 2, quote a-b). The caregivers tended to disclose more insights about the fluidity and complexity of their home smoking rules as the interview progressed, suggesting that they felt more comfortable with the researcher and increased in confidence over time. One mother initially stated that she only ever smoked in the kitchen (Box 2, quote c), however, she subsequently disclosed that on a Friday, because her daughter was at nursery, she smoked in the living room (Box 2, quote d). This fluidity in home smoking rules was justified by the opening of a window to ensure that the room was *'clear'* prior to the child returning home, implying that because she could not smell smoke, she believed that the risk of harm to the child was significantly reduced or even removed.

Positive behaviour change

There were some caregivers who had, over a period of time, made the association between their smoking and health issues with their own children and then implemented changes to their smoking behaviour (Box 2, quote e). In addition, several caregivers discussed the fact that they had been able to initiate a smoke-free environment for their newborn baby, believing that infants of this age were at most risk if exposed to SHS, however, the strictness of this changed and became more relaxed as the child got older and the family's perception of risk decreased (Box 2, quotes f-g).

Barriers to initiating a smoke-free home

Table 1 provides an overview of the barriers for initiating and maintaining a SFH that emerged from the interview data. Within the interviews, there was significantly more discussion around the barriers to creating SFH compared to the motivators, and caregivers constructed detailed and often complex discourse about why they were unable to initiate and maintain a SFH for their children. The main barriers related to habits and stressors. Caregivers perceived that it would be very difficult to change their current smoking behaviour in order to smoke outside, as smoking was such an ingrained behaviour in their day to day routine. Several caregivers, both men and women, openly admitted that they were *'lazy'* and were unwilling to make the effort to smoke outside as it was simply easier to smoke inside. In addition, there was the overriding desire to smoke in comfort, privacy and in a safe environment, none of which were facilitated when smoking outside for some caregivers (Box 3, quotes a-c). For the majority of participants there appeared to be a conflict between being a smoker and being a caregiver, in that, caregivers perceived that smoking around a child was less harmful than leaving the child unattended whilst going outside to smoke (Box 3, quote d).

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Nearly all of the caregivers, once probed, indicated that the fluidity of their home smoking rules was a consequence of dealing with day to day living such as the presence of children and/or visitors in the household, the influence on relationships with others who care for their children, the weather conditions, and in particular, stress levels. Caregivers found it harder to keep rigid rules when under increased stress and articulated that the act of smoking provided an opportunity to *'escape'* from these issues for a few minutes and ultimately helped them to cope more effectively (Box 3, quote e). What was clear is that

these caregivers lead complex and difficult lives and smoking, as well as exposure to SHS, is very low on their priority list of things that they should actively do something about. Smoking and exposure to SHS were often perceived as the *'lesser evil'* in comparison to the other significant problems that these caregivers and their children face when living and growing up in poverty. A number of caregivers expressed concern that if smoking was taken away from them, they would not be able to cope with everyday life. (Box 3, quote f).

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There were a small number of caregivers who felt that they lacked autonomy in their relationships with family and friends and so were unable to enforce rules about smoking in the home. This was a particular problem for caregivers who received childcare help from smoking family and friends, as they felt that by enforcing certain rules they may be seen as hypocritical given that they were also smokers, and there was an underlying fear that these carers may withdraw their childcare support if actively prevented from smoking within the care giving environment (Box 3, quote g).

Motivators for initiating a smoke-free home

Table 1 provides an overview of the motivators for initiating and maintaining a SFH that emerged from the interview data. The strongest emerging motivator was around house decor and the fact that the caregivers did not like the smell of cigarette smoke (Box 3, quote h). When probed, child health emerged as another reason for wanting to stop smoking in the home, however, it appeared that this was of lower priority in contrast to house decor (Box 3, quotes i-j). A number of caregivers discussed the fact that they wanted to quit smoking and articulated that they thought that making their homes smoke-free could be a manageable first step in the complex process of quitting. The potential self-reward and positive reinforcement generated as a result of making this significant change in behaviour,

may empower caregivers to attempt to quit smoking (Box 3, quotes k-l). Several caregivers were concerned about being seen as a role model for being a smoker by their children, and articulated that by taking smoking outside of the house, their children may not perceive smoking to be such a normative behaviour, and may therefore be less likely to initiate smoking in later life. Guilt was a predominant theme that was interwoven with several of the other motivators, and was perceived to be one of the biggest influences when trying to implement changes in smoking behaviour, particularly for female caregivers (Box 3, quotes m-n).

Discussion

This research adds to the growing body of evidence that for many disadvantaged caregivers, in spite of some awareness of the extensive health risks to children, and some rules around where they themselves and visitors can smoke in their homes, initiating and maintaining a SFH is particularly difficult. Although caregivers implement rules, these are often fluid and modified in reaction to day to day living and so do not offer adequate protection to the children living within the household. This study significantly increases our knowledge of the barriers and motivators to smoking caregivers in creating and maintaining a SFH and suggests promising avenues to promote SFH in the future.

This study confirms previous research showing the fluidity of household rules around smoking (Phillips, et al., 2007; Robinson & Kirkcaldy, 2007a); all families described rules around smoking in the home, typically restricting smoking to one or two rooms, but these rules were violated with some regularity, as has been seen in other population groups. In line with other research however, the majority of families interviewed articulated that they had implemented strict home smoking rules around their newborn baby, typically smoking

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outside, but that these rules tended to be relaxed as the child got older and here appeared to be two main reasons why home smoking rules became more fluid (Holdsworth & Robinson, 2008; Robinson & Kirkcaldy, 2009). The first related to changing risk perceptions, in that caregivers felt that newborn babies were at the greatest risk of harm from exposure to SHS and thus should be protected, but that as children grew, they were perceived to become more tolerant and so less in need of protection (Robinson & Kirkcaldy, 2009). Secondly, caregivers described a conflict between caring for the child and the desire to smoke (Holdsworth & Robinson, 2008; Robinson & Kirkcaldy, 2007a). Additionally, in our study, we showed that mothers perceived it to be easier to leave a newborn baby unsupervised for ten minutes to go outside to smoke in comparison to leaving a mobile and inquisitive toddler. Caregivers made a conscious decision to smoke in the house, albeit away from the child, but close enough to provide adequate supervision. In addition, whilst not always openly articulated, there was an underlying tension around the need to continue to smoke, which manifested itself in narratives of routine and the perceived difficultly of changing current smoking and caring behaviours. This supports other studies which explored why mothers continue to smoke in the home and suggested that smoking enables mothers to *'cope'* with caring in circumstances of poverty and hardship (Graham, 1993; Robinson & Kirkcaldy, 2009) and that their ability to initiate and maintain a smoke-free environment for their children competes with their caring responsibilities, which is further restricted by the physical environment in which they live (Graham, 1984; Robinson & Kirkcaldy, 2007a, 2007b). It is evident that health promotion messages need to highlight the continuing risk from SHS throughout childhood and beyond. Nevertheless, that families are able to initiate and maintain a SFH, even if only for a short period of time, could be used as a positive lever by HCPs when trying to help families to make their homes smoke-free.

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Initiating and maintaining a SFH for these families is often complicated by the transient lifestyles they lead, in that their family lives are complex and often unstable. The primary caregiver, typically the mother, and the children tend to stay in one place and partners and other adults regularly move in and out of the household. In addition, caregivers articulated that their daily lives involved many conflicting priorities, of which changing behaviour around tobacco use was not one. This instability and lesser priority intensifies the fluidity of their household smoking rules and creates further barriers to the initiation and maintenance of a SFH. As described in other populations, by restricting smoking within the home, caregivers were concerned that they may be seen as hypocritical by their family and peer networks, for whom smoking was seen as a normative behaviour (Phillips, et al., 2007) and that this would run the risk of negatively impacting on their relationships, particularly with other adults that reside within their household and with smoking family and friends who provide essential support, emotional and financial, to the caregiver and often free childcare for their children (Robinson, 2008). It is clear that HCPs must consider the composition of the household and the potential impact on relationships when attempting to help caregivers reduce children's exposure to SHS. By offering support to partners and other smoking adults who reside, or spend considerable time within the household the chances of success may be increased. The evidence suggests that only complete smoking bans are effective and there is clearly a need for HCPs to promote this message more consistently (Blackburn, et al., 2003).

The strongest emerging motivator for stopping smoking in the home was house decor and smell, whilst few caregivers actively articulated children's health as a motivator when asked an open question; decor and smell have also been overriding concerns of smoking

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caregivers in other studies (Holdsworth & Robinson, 2008; Phillips, et al., 2007). One interpretation of these findings is that caregivers are more strongly motivated by the sight or smell of the impact of SHS exposure, for example, the smell from smoke and the damage that smoke does to furnishings. That caregivers in our study appeared to believe that by restricting smoking to only one room, and by employing strategies such as using an air freshener and opening windows, the harm to their children was greatly reduced or even eliminated, was perhaps because there was no demonstrable evidence of the impact of SHS exposure. Unlike the immediate evidence of smell, the concept of a child who is currently outwardly well getting cancer in later life, while emotive, is an abstract concept, and an event that may occur in the distant future. Often, caregivers do not perceive these longer term outcomes to be as a direct result of their current smoking behaviours, and thus do not prompt the need for immediate action. One possible interpretation of these data is that providing caregivers with demonstrable evidence, such as biochemical markers of SHS exposure in their children, may be a more effective promoter of successful and sustained behaviour change.

Caregivers' poor knowledge of the risks of harm from SHS has been linked with exposure in children (Lader, 2008), yet increased awareness of the risks has not resulted in increased measures to make homes smoke-free (Royal College of Physicians, 2010). Within the current study, smoking caregivers' knowledge of the risk of SHS exposure varied considerably. A number of caregivers appeared confused about the health risks of tobacco use and SHS exposure, similar to previous research which highlighted caregiver confusion around the health risks and also identified that caregivers construct alternative explanations for their children's illnesses based on personal knowledge and circumstances and create resistant

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discourses to dominant scientific knowledge that may link these illnesses with their own smoking behaviours (Robinson & Kirkcaldy, 2007b). This apparent confusion around the risks, mixed with resistance to health messages, also suggests that some demonstrable evidence of the impact of smoking in the home on children's health may be more effective for promoting behaviour change. Such a finding may well also override participants' '*laziness*' to change as it challenges their complacency around the relative risks of smoking around children and others.

Another important motivator was the desire to quit smoking, which is the most reliable way to reduce children's exposure to SHS, and several caregivers articulated that they thought that stopping smoking in the home could be a manageable first step in the complex and difficult process of quitting smoking. Whilst HCPs should encourage and reward positive behaviour change, such as taking smoking outside of the home, it will be important that they also emphasise that cutting down can be an important first step towards quitting and that smokers should ultimately aim to stop smoking completely as this will be best for their own health and the health of their children.

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Strengths and limitations

We interviewed a relatively small number of very disadvantaged individuals, aiming not for generalisability, but rather to collect data that were rich and insightful. We actively chose to engage with this disadvantaged target group in order to identify positive levers for change and thus help to reduce health inequalities. The nature of the one to one interviews facilitated in depth discussion of household smoking behaviours and the motivators and barriers to initiating and maintaining a SFH and allowed saturation of themes. It is possible that, even in the one to one situation, caregivers may have felt inhibited in discussing their

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real feelings on some topics due to the moral issues surrounding SHS; for example, this may have influenced some caregivers in their response to questions on whether they wanted more information on SHS health risks. Nevertheless, our methods allowed critical and objective comparisons between caregivers, from similar backgrounds but with very different experiences and attitudes. We focussed our interviews on identifying those levers for behaviour change that might lend themselves to HCP intervention, and our results are likely to have utility beyond this target group, including policy makers, advocacy organizations and educators.

Conclusions

Whilst the best way to reduce children's exposure to SHS is to encourage their caregivers to quit smoking all together, there are a group of caregivers who cannot or will not quit and so the next best option is to encourage these families to make their homes completely smoke-free. This study extends our knowledge of the attitudes, beliefs and behaviour of disadvantaged caregivers, for whom smoking in the home is still common. Whilst some attempts were being made to restrict smoking at home, the fluidity of these home smoking rules appears unlikely to offer appropriate protection for smokers' children. The motivators to introducing SFH were home decor and smell, children's health and the possibility that making a successful change in home smoking behaviour might be a stepping stone to quitting completely. Our findings suggest that tailored information to reduce children's SHS exposure is necessary, but in order to instigate disadvantaged caregiver behaviour change, providing demonstrable evidence of the impact of smoking on their children's' health is more likely to be effective.

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Declaration of interests

There are no competing interests for any of the authors regarding this paper.

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References

Ashley, M. J., & Ferrence, R. (1998). Reducing children's exposure to environmental tobacco smoke in homes: issues and strategies. *Tobacco Control, 7*(1), 61-65. doi: 10.1136/tc

Blackburn, C., Spencer, N., Bonas, S., Coe, C., Dolan, A., & Moy, R. (2003). Effect of strategies to reduce exposure of infants to environmental tobacco smoke in the home: cross sectional survey. *British Medical Journal, 327*(7409), 257. doi: 10.1136/bmj.327.7409.257

Bolte, G., & Fromme, H. (2009). Socioeconomic determinants of children's environmental tobacco smoke exposure and family's home smoking policy. *European Journal of Public Health, 19*(1), 52-58. doi: ckn114

Braun, V., & Clarke, V. (2006). Using thematic analysis in psychology. *Qualitative Research in Psychology, 3*(2), 77-101. doi: 10.1080/03004430903172335

Cook, D. G., & Strachan, D. P. (1999). Health effects of passive smoking-10: Summary of effects of parental smoking on the respiratory health of children and implications for research. *Thorax, 54*(4), 357-366.

Gehrman, C. A., & Hovell, M. F. (2003). Protecting children from environmental tobacco smoke (ETS) exposure: a critical review. *Nicotine & Tobacco Research, 5*(3), 289-301. doi: 10.1080/1462220031000094231

Graham, H. (1984). *Women, Health and the Family*. Brighton: Wheatshead Books Ltd.

Graham, H. (1993). *Hardship and Health in Women's Lives*. Hemel Hempstead: Harvester Wheatsheaf.

Holdsworth, C., & Robinson, J. E. (2008). 'I've never ever let anyone hold the kids while they've got ciggies': moral tales of maternal smoking practices. *Sociology of Health & Illness, 30*(7), 1086-1100. doi: 10.1111/j.1467-9566.2008.01102.x

Jarvis, M. J., Mindell, J., Gilmore, A., Feyerabend, C., & West, R. (2009). Smoke-free homes in England: prevalence, trends and validation by cotinine in children. *Tobacco Control, 18*(6), 491-495. doi: 10.1136/tc.2009.031328

Jarvis, M. J., & Wardle, J. (2005). Social patterning of individual health behaviours: the case of cigarette smoking. In M. Marmot & R. G. Wilkinson (Eds.), *Social Determinants of Health* (2nd ed.). Oxford: Open University Press.

Johansson, A., Halling, A., & Hermansson, G. (2003). Indoor and outdoor smoking: impact on children's health. *European Journal of Public Health, 13*(1), 61-66. doi: 10.1093/eurpub/13.1.6

Jones, L. L., Hashim, A., McKeever, T., Cook, D. G., Britton, J., & Leonardi-Bee, J. (2011). Parental and household smoking and the increased risk of bronchitis, bronchiolitis and other lower respiratory infections in infancy: systematic review and meta-analysis. *Respiratory Research, 12*(1), 5. doi: 10.1186/1465-9921-12-5

Lader, D. (2008). *Smoke-related Behaviour and Attitudes, 2007*. Newport: Office for National Statistics.

Parry, O., Bancroft, A., Gnich, W., & Amos, A. (2001). Nobody home? Issues of respondent recruitment in areas of deprivation *Critical Public Health, 11*(4), 305-317. doi: 10.1080/09581590110094585

Phillips, R., Amos, A., Ritchie, D., Cunningham-Burley, S., & Martin, C. (2007). Smoking in the home after the smoke-free legislation in Scotland: qualitative study. *British Medical Journal, 335*(7619), 553. doi: 10.1136/bmj.39301.497593.55

Rahkonen, O., Laaksonen, M., & Karvonen, S. (2005). The contribution of lone parenthood and economic difficulties to smoking. *Social Science and Medicine, 61*(1), 211-216. doi:10.1016/j.socscimed.2004.11.044

Robinson, J. (2008). "Trying my hardest": the hidden social costs of protecting children from environmental tobacco smoke. *International Review of Qualitative Research, 1*(2), 173-194.

Robinson, J., & Kirkcaldy, A. J. (2007a). Disadvantaged mothers, young children and smoking in the home: mothers' use of space within their homes. *Health and Place, 13*(4), 894-903. doi: 10.1016/j.healthplace.2007.03.001

Robinson, J., & Kirkcaldy, A. J. (2007b). 'You think that I'm smoking and they're not': why mothers still smoke in the home. *Social Science and Medicine, 65*(4), 641-652. doi: 10.1016/j.socscimed.2007.03.048

Robinson, J., & Kirkcaldy, A. J. (2009). 'Imagine all that smoke in their lungs': parents' perceptions of young children's tolerance of tobacco smoke. *Health Education Research, 24*(1), 11-21. doi: 10.1093/her/cym080

Robinson, J., Ritchie, D., Amos, A., Greaves, L., & Cunningham-Burley, S. (2011). Volunteered, negotiated, enforced: family politics and the regulation of home smoking. *Sociology of Health and Illness, 33*(1), 66-80. doi: 10.1111/j.1467-9566.2010.01273.x

Royal College of Physicians. (2010). Passive smoking and children. A report by the Tobacco Advisory Group. London: RCP.

Sims, M., Tomkins, S., Judge, K., Taylor, G., Jarvis, M. J., & Gilmore, A. (2010). Trends in and predictors of second-hand smoke exposure indexed by cotinine in children in England from 1996 to 2006. *Addiction, 105*(3), 543-553. doi: 10.1111/j.1360-0443.2009.02805.x

Wallace-Bell, M. (2003). The effects of passive smoking on adult and child health. *Journal of Professional Nursing, 19*(4), 217-219.

Willers, S., Skarping, G., Dalene, M., & Skerfving, S. (1995). Urinary cotinine in children and adults during and after semiexperimental exposure to environmental tobacco smoke. *Archives of Environmental Health, 50*(2), 130-138.

Wipfli, H., Avila-Tang, E., Navas-Acien, A., Kim, S., Onicescu, G., Yuan, J., et al. (2008). Secondhand smoke exposure among women and children: evidence from 31 countries. *American Journal of Public Health*, 98(4), 672-679. doi: 10.2105/AJPH.2007.126631

Tables

Table 1. Barriers and motivators to initiating and maintaining a smoke-free home for disadvantaged caregivers in Nottingham (the strongest emerging themes are highlighted in bold).

Barriers	*Motivators*
Influence on relationships	**House decor**
Space restrictions	**Children's health**
Conflict of being a smoking caregiver	Pet's health
Conflict between coping and caring	Improved health of caregiver
Stress	Increased life expectancy of caregiver
Habit, addiction, boredom	Ability to care for children as they get older
Abuse of other addictive substances	**Reduced risk of children becoming smokers**
Desire to smoking in comfort, privacy, and in a safe environment	~~Influence of partner, family & friends~~
Lazy, lack of will power	Guilt
Tobacco use low on priority list	**Desire to quit smoking**
Personal choice	Legal or rental restrictions
Social & peer pressure	
Lack of autonomy, culture, hospitality	

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Quote a
"…high instances of asthma and obviously cot death's higher if people are smoking in the house…" *(single mother, 25-34 yrs)*

Quotes b & c
"My friend's son's got asthma, I don't know if that's from [his] smoking or what? *(single father, 16-24 yrs)*

"I know passive smoking is supposed to be worse than smoking itself, int it? I dunno I think it is? I'm sure it is, oh I don't know" *(single mother, 25-34 yrs)*

Quote d
"I'd say you get more pollution in the air than you would from standing in front of someone who's got a cigarette on, do you know what I mean?" *(single mother, 25-34 yrs)*

Quote e
"Well the midwife said to me obviously your smoking doesn't help but it has been researched and proven that smokers tend to have smaller babies erm but I think having friends that had had babies and they'd smoked and their babies were like eight or nine pounds I was thinking oh it's a load of rubbish and I think you do kind of like just brush it off…" *(cohabiting mother, 25-34 yrs)*

Quotes f & g
"I think more, I think for me and for people that do smoke in the house, more information what it actually does to your children in the long run" *(single mother, 25-34 yrs)*

"Well I don't anyway, I don't know what other people are like, cos I know, I know some of the bad side of it…..and if I hadn't probably, if I knew more then I'd hate myself if I couldn't stop, do you know what I mean? That's, that's probably why I wouldn't want to know" *(single mother, 25-34 yrs)*

Box 1. Knowledge, attitudes and beliefs around second hand smoke

Quotes a & b

"I only smoke in the living room, I don't smoke upstairs, er, I don't smoke in the kitchen. There's just the living room I smoke in" *(divorced grandmother, 45+ yrs)*

"See I do that, I only smoke in my kitchen but when she's gone to bed I'll smoke in the living room" *(single mother, 16-24 yrs)*

Quote c

"I've always smoked in the kitchen, that's the only place we all smoke, out the way from the children" *(married mother, 25-34 yrs)*

Quote d

"It was like now on a Friday because [daughter] is in nursery from 8 o'clock on Friday cos normally just afternoons but cos she's in all day Friday er sometimes I have a fag in the living room because no children are in the house but we make sure that like, before they actually come home that it's clear and we make sure we open a window and that so you can't smell it" *(married mother, 25-34 yrs)*

Quote e

"Even though I realised I was a smoker I didn't realise the damage it was doing to my eldest son. Erm he was asthmatic cos he lived in a home where there was always somebody smoking which was me erm but the time I realised that and stopped smoking out of the house, erm his asthma went but you know, he was about…eight. So for a fair number of years I'd actually caused him damage as well as myself. I never connected his asthma with my smoking" *(single mother, 25-34 yrs)*

Quotes f & g

"Well I don't smoke erm, when they was babies I never smoked in front of them at all. Er now that they're like running around and stuff like that I'll go in the kitchen and smoke in the kitchen and if, and they'll be in and out so I can't help em being round it but erm you see I can't smoke outside. I'd never smoke in front of em as tiny babies. I think the first time I smoked in front of any of my children they was over the age of one or two even" *(single mother, 25-34 yrs)*

"I mean, when he, when he was a baby, I stopped smoking and went outside and had fags outside but as he's got older, he's in the other room and I'm in the kitchen" *(single mother, 35-44 yrs)*

Box 2. Fluidity and complexity of household smoking rules (quotes a-d) and positive behaviour change (quotes e-g)

Quotes a-c
"...and a bit lazy sometimes I think, I can't be bothered to go outside so you'd light a fag up and say, well, here we go, you know" *(married father, 35-44 yrs)*

"Like I said if it's raining I end up smoking in the house, I know for a fact I'll won't go outside in the rain if I'm having a fag, fag will get wet" *(single mother, 16-24 yrs)*

"Cos I wouldn't go outside if I lived in [local area] because it is, it's not nice. It's like, I tried doing that smoking outside…I weren't on my doorstep I was sat on the kitchen table… but the only reason why I did that was because my garden, like, there's that…alleyway type thing and then my garden and then my door, so you don't know who's coming round and then for it to be dark as well it is scary to go outside…" *(single mother, 25-34 yrs*)

Quote d
"We just, just decided to but we wouldn't dare smoke in front of her, I don't know why. But that where she started crawling around and we're both outside, we didn't really want to leave her in, leave her by herself so...then we would smoke in the kitchen and then we just started smoking around her as well." *(single mother, 16-24 yrs)*

Quote e
"...and all you wanna do is scream at em and you can't do that so you end up going into the kitchen, having a fag and then you sort it…" *(single mother, 25-34 yrs)*

Quote f
"Errrr stress really, bringing up four kids and one with, you know, disabilities as well and plus cos I'm like here there and everywhere lately" *(single mother, 25-34 yrs)*

Quote g
"No. It's just, I don't know, it's his life. I mean, he's 12 years older than me, what right have I got to tell him what to do, do you know what I mean?… To be honest with you, when he's not there, I mean, like today, he's not going to be there, it's going to be smoke-free. He's not going to be back till half nine, 10 o'clock tonight, the kids will be in bed, it doesn't matter." *(married mother, 25-34 yrs)*

Quote h
"Cos I'm, I'm house-proud, it's the smell on your curtains, your clothes, the walls. I mean I'm lucky cos I've got all painted walls and I'll be washing my walls regular so I do see it" *(single mother, 34-44 yrs)*

Quotes i & j
"I just come in one day, I opened the door and my house smelt of cigarettes, I'm not one for these artificial air fresheners because they just give me headache, I hate them erm I thought well how, how do you get rid of this nasty awful smell, oh I know don't smoke no more. And then I took my eldest son for his asthma review and she said you know he doesn't need inhalers anymore and then it just clicked" *(single mother, 25-34 yrs)*

"…and [daughter's] health as well. So obviously yeah, I think that she', it wasn't coming near her in the flat but obviously it does cos it, it stays don't it and lingers" *(single mother, 16-24 yrs)*

Quotes k & l
"I think cos if I had to smoke outside and I hate going outside. So I just wanted to stop, and for my daughter as well. It's not very nice for her" *(single mother, 16-24 yrs)*

"Possibly to do it in like a two-step phase, to do that one first and then after a while stop altogether…Make the smoke-free house permanent, smoking outside but then, erm, after a while just give up totally" *(Married mother, 25-34 yrs)*

Quotes m & n
"...because of the health benefits to my kids. It breaks my heart to think that my son's asking me for a cigarette and saying he needs it" *(cohabiting mother, 35-44 yrs)*

"Erm, quite bad cos you feel guilty for – not for excluding them but for doing that because they shouldn't be seeing that" *(married mother, 25-34 yrs)*

Box 3. The barriers (quotes a-g) and motivators (quotes h-n) to initiating & maintaining a smoke-free home