USING QUALITATIVE RESEARCH TO INFORM INTERVENTIONS TO REDUCE SMOKING IN PREGNANCY IN ENGLAND: A SYSTEMATIC REVIEW OF QUALITATIVE STUDIES

Final Report

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LIST OF ABBREVIATIONS

CDSR	Cochrane Database of Systematic Reviews
CINAHL	Cumulative Index to Nursing and Allied Health Literature
CRD	Centre for Reviews and Dissemination
DARE	Database of Abstracts of Reviews of Effects
DH	Department of Health
ESRC	Economic and Social Research Council
IMD	Index of Multiple Deprivation
MCS	Millennium Cohort Study
MeSH	Medical subject headings in the MEDLINE thesaurus
NHS	National Health Service
NICE	National Institute for Health and Clinical Excellence
NRT	Nicotine Replacement Therapy
pa	Per annum
PHRC	Public Health Research Consortium
RTA	Reciprocal Translation Analysis
SSCI	Social Sciences Citation Index

PREFACE

Research on 'what works' to improve health has paid little attention to the everyday lives of those targeted by public health interventions. The methodologies developed to evaluate interventions to encourage smokers to quit are not designed to capture the contexts in which people's smoking habits are embedded. However, it is increasingly recognised that everyday circumstances and everyday experiences play a central role in influencing the process of behaviour change – and an understanding of people's circumstances and experiences is therefore an important component of the evidence base to inform policy and practice. This appreciation of the need to design services around people's lives underpins England's *Tobacco Control Plan*.

Our report provides evidence of the circumstances and experiences of women who smoke in pregnancy. It describes a systematic review of qualitative studies of smoking in pregnancy conducted in countries which, like the UK, have marked social gradients in maternal smoking. Over 600 women were included in the studies in the review. In the chapters that follow, we investigate how the circumstances of women's lives influenced their smoking behaviour before and in pregnancy, looking particularly at their attitudes to and experiences of quitting. Alongside the systematic review of qualitative research, we examined existing systematic reviews of smoking interventions that focused on, or included, pregnancy and the post-partum period to establish whether contextual factors, including barriers to cessation, were addressed in the reviews.

The study was funded by the DH Public Health Research Consortium (PHRC), a consortium designed to undertake research to improve the evidence base for policy. The 13-month project formed part of the PHRC's first programme of work (2005-11). The programme had a dual focus on individual behavioural risk factors and wider social determinants, particularly in the context of social disadvantage.

EXECUTIVE SUMMARY

Background:

Smoking in pregnancy is a socially-patterned risk. Women in disadvantaged circumstances are more likely to smoke prior to pregnancy than women from more advantaged backgrounds; they are also less likely to quit in pregnancy and, among those who quit, more likely to resume smoking after birth.

Tackling inequalities in smoking is central to *Healthy Lives, Healthy People* and to the associated *Tobacco Control Plan*. Both strategies emphasise the importance of understanding people's everyday circumstances as a first step in developing and delivering interventions to promote healthy behaviours. However, systematic reviews of interventions are not designed to provide contextual understanding. Systematic reviews of qualitative studies are therefore beginning to fill this evidence gap in the evidence base.

Aims:

Our main aim is to enrich the evidence base informing policies and interventions to reduce smoking in pregnancy by including evidence from qualitative studies. The objective of the project is to undertake a systematic review of qualitative studies to provide evidence on how women's circumstances and experiences influence their smoking behaviour in pregnancy, including their attempts to quit.

As a supplementary question, we examined whether the contextual factors identified as influencing smoking behaviour were considered in systematic reviews of interventions to reduce smoking in pregnancy.

Design and methods:

The main component of the project was a systematic review of qualitative studies describing women's experiences of smoking in pregnancy published from the 1970s. The studies were all conducted in high-income countries which, like the UK, have marked social gradients in cigarette smoking among women and men. In line with standard practice for the conduct of systematic reviews, we searched through electronic databases to identify both published and 'grey' literature (unpublished reports, PhD theses etc). In addition, we followed up references to further studies identified through this initial search and we contacted experts in the field. All studies that reported their findings in English were included. For each study, relevant information was extracted and the study quality assessed.

For the synthesis of the qualitative studies, we used meta-ethnography, a method that systematically maps, compares and condenses findings from different studies. We coded the findings of each study and then progressively combined codes to provide a rich picture of how the circumstances of women's lives influence their smoking behaviour in pregnancy.

The supplementary component of the study was an overview of systematic reviews of interventions of smoking cessation in relation to pregnancy. We searched for systematic reviews of smoking published between 2005 and 2011. For each review, any discussion of contextual factors was recorded.

Findings from the qualitative systematic review:

We located 24 relevant studies reported in 27 papers. The majority of the studies had been published since 2000 (n=16) and had been conducted in the UK (n=8) or the US (n=8). The studies reported on the experiences of over 600 pregnant women. Some studies also included non-smokers; however, the majority of study participants were women who had begun their pregnancy as smokers and who had either quit or continued to smoke. In line with the broader social patterning of smoking in pregnancy, participants were disproportionately drawn from disadvantaged groups. Educational attainment was the most commonly used indicator of socioeconomic background.

The synthesis of evidence from the studies suggests:

(i) Smoking and the process of quitting:

- smoking was deeply enmeshed in women's lives; if they had not become pregnant, there is little evidence to suggest that they would have considered changing their smoking habits.

- smoking was seen to bring psychosocial benefits, as a resource in times of stress and a pleasure to be enjoyed and shared with partners.

- becoming pregnant meant that being a smoker could no longer be an accepted and taken-for-granted identity; instead, it generated guilt and social disapproval.

- there was a general awareness of the risks of smoking to the unborn baby; low birth weight was the most frequently mentioned risk.

- however, there was a common perception that the risks were exaggerated - they and their friends smoked and had had healthy babies.

- for those who tried to quit, giving up smoking was often seen as a temporary measure, undertaken for pregnancy and for the sake of the baby.

- for those who tried to quit, cutting down to quit was the method most frequently described.

- both giving up smoking and not relapsing were described as daily struggles, particularly as women's everyday circumstances often continued to be difficult.

- on-going encouragement and personalised support were widely regarded as important, both from partners, family and friends and from health care staff (cessation services, GPs, maternity staff).

- partners played a central role in influencing women's smoking behaviour in pregnancy, both through their smoking behaviour and through the wider dynamics of the couple's relationship.

(ii) Continuing to smoke in pregnancy:

- women's circumstances were seen to constrain the options for making positive changes in their smoking behaviour.

- some women who continued to smoke acknowledged how harmful it was to their baby; however, others expressed the view that smoking – particularly at the levels they smoked - was not hazardous enough to warrant quitting.

- cutting down was often described as a positive change in its own right and, given their circumstances, seen as possible and sustainable in ways that quitting was not; some health professionals were seen to condone cutting down.

- personal experience – both their own and that of their friends – suggested that smoking in pregnancy did not compromise infant health; scientific evidence and professional advice was seen to overstate the risks of smoking in pregnancy.

Findings from the overview of interventions to reduce smoking in pregnancy:

Eight systematic reviews met the inclusion criteria and were included in the overview.

- despite our focus on recently-conducted systematic reviews, few addressed issues of context in any detail.

- only three of the eight reviews referred to the social gradients in smoking in pregnancy, to the circumstances and experiences of women who smoke in pregnancy or to potential social differentials in the effects of interventions.

Conclusions and research recommendations

In line with our aim, the systematic review of qualitative studies provided insight into how women's circumstances and experiences influence their smoking behaviour in pregnancy, including their attempts to quit. The continuity in attitudes and experiences across place and time was a striking finding of the review.

Drawing on the findings summarised above, we highlight four dimensions of women's circumstances and experiences with implications for the design and delivery of interventions to support quitting in pregnancy.

These relate to the role of partners; the motivation to quit for pregnancy rather than to quit for good; the prominence of cutting down both as a method of quitting and as an alternative to quitting; and the different concepts of risk that underpin scientific evidence and professional advice on the one hand and guide everyday life on the other.
For each of these dimensions, the evidence base is weak. We therefore recommend urgent consideration is given to research**:**

- on women's motivation to quit in pregnancy 'for the sake of their unborn baby', its impact on post-partum resumption of smoking and its implications for those supporting smoking cessation in pregnancy (including maternity and smoking cessation services).

- to map the complex role that partners play in the lives of pregnant women who smoke (for example, through primary qualitative research or a synthesis of qualitative research. Such research could inform recommendations on NICE guidance relating to the partners of pregnant smokers as well as helping local authorities to ensure that Stop Smoking Services are sensitive to women's vulnerability within controlling relationships.

- on the place of cutting down in pregnancy, particularly if cut-down-to-quit is to be piloted as a method for potential roll-out through Stop Smoking Services to the general population of smokers.

- on perceptions of risk among pregnant smokers and their health care providers.

In addition, we recommend that consideration is given to a systematic review of qualitative evidence linked to or arising from evaluations of interventions to promote smoking cessation in pregnancy. Such a review could also examine the extent to which the interventions addressed the contextual factors shaping women's smoking and quitting behaviour identified in our review of qualitative studies

1. SMOKING IN PREGNANCY: BACKGROUND TO THE REVIEW OF QUALITATIVE STUDIES

- Smoking in pregnancy places women at greater risk of placental abruption and miscarriage. It also increases the risk of their baby being low birth weight, dying in the first year of life and having physical illnesses during childhood;
- Compared to women in more advantaged circumstances, women in disadvantaged circumstances are more likely to smoke prior to pregnancy and less likely to quit;
- For most quitters, giving up smoking is a time-limited change in smoking status, undertaken for pregnancy only; disadvantaged quitters are more likely to resume smoking after birth.
- Quitting is not the most frequently-reported change that smokers make in pregnancy; a larger proportion report that they cut down;
- Most women who smoked prior to pregnancy have partners who are also smokers; the majority of partners who smoke make no change to their smoking habits;
- The *Tobacco Control Plan* emphases the importance of interventions that take account of social factors that make it hard for smokers to quit; however, systematic reviews of interventions are not designed to provide this contextual information on smokers' lives;
- Systematic reviews of qualitative studies can provide the contextual understanding missing in reviews of interventions;
- This report goes on to describe a systematic review of qualitative studies of smoking in pregnancy.

1.1 Smoking in pregnancy

Tobacco smoking releases compounds known to have toxic effects on maternal and child health, including carbon monoxide and nicotine.[1] The adverse health effects of smoking in pregnancy are expressed as relative risks; this takes pregnant non- smokers as the reference group and estimates how much more likely an adverse outcome is for pregnant smokers.

Women who smoke in pregnancy are at heightened risk of placental abruption and miscarriage.[1] Compared to children born to non-smokers, the children of smokers are twice as likely to be low birth weight or small for gestational age,[1] and have a 40% greater chance of dying in the first year after birth.[2] Maternal smoking in pregnancy doubles the risk of sudden infant death syndrome, and the risk is higher for infants who are additionally exposed to tobacco smoking after birth.[2-3] Studies suggest that the adverse effects of smoking in pregnancy extend into infancy and childhood, and include reduced lung function and an increased risk of physical illness.[3] Not only are children of smokers at heightened risk; among children born to smokers, there is also evidence of a dose-response between cigarette consumption and the risks to the child.[1-2] Given its heavy health toll, it is not surprising that smoking in pregnancy has a high economic cost. A recent PHRC project estimated the cost to the NHS of maternity care and infant care (first year of life) related to smoking in pregnancy at between £20m to £88m pa.[4]

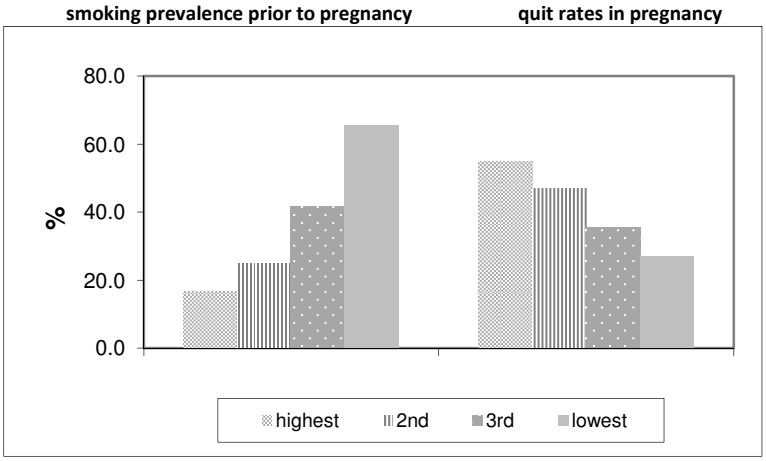
Evidence on smoking prevalence in pregnancy is primarily based on information on self-reported smoking status collected in community-based surveys. While self-report is generally considered a reliable measure in community-based studies of the adult population,[5] studies suggest that, because

of the strong social pressures on women not to smoke in pregnancy, self-reported smoking status in pregnancy under-estimates prevalence and over-estimates quit rates. In consequence, biochemical measures of smoking status produce higher estimates of prevalence and lower estimates of cessation,[6-7] this is particularly the case in studies conducted in health care settings like antenatal clinics.[8] There are few studies investigating social differentials in under-reporting in smoking in pregnancy. An early study reported no differences in the extent of under-reporting across socioeconomic groups,[9] however a more recent Scottish study found that under-reporting was greater among women in more advantaged circumstances.[7]

While the limitations of self-reported measures need to be noted, the broad patterns emerging from surveys of smoking are clear. Three of these patterns are discussed here: the link with disadvantage, the complex changes in smoking habits in pregnancy and the association between a woman's smoking behaviour in pregnancy and that of her partner. Each dimension figured prominently in the qualitative studies in our systematic review, and are therefore discussed below.

Firstly, smoking in pregnancy is strongly linked to social disadvantage among white and African-Caribbean women as well as among other ethnic groups where overall prevalence is lower.[10-11] The marked socioeconomic gradients in smoking in pregnancy reflect both higher smoking rates prior to pregnancy and lower rates of quitting during pregnancy among mothers in poorer circumstances. The Millennium Cohort Study (MCS), a UK-wide study that recruited over 18000 mothers and their babies born in 2000/1, illustrates these gradients. Taking household income as a measure of socioeconomic circumstances, Figure 1.1 describes the social gradients in smoking prior to pregnancy and quitting in pregnancy. As Figure 1.1 indicates, the proportion of women who were regular smokers (≥1 cigarette per day) before pregnancy climbed from 17% among mothers in the highest income group to 66% among mothers in the lowest income group; strong, but reverse, gradients are also evident for quitting, with quit rates ranging from 55% to 27% across the income range. Socioeconomic differentials in under-reporting cannot account for the magnitude of the gap in smoking: in the Scottish study, cotinine-validated rates of smoking in pregnancy were three times higher in the most disadvantaged group than in the least disadvantaged group.[7]

Figure 1.1: Smoking prevalence prior to pregnancy and quit rates in pregnancy by equivalised household income, UK 2000/01

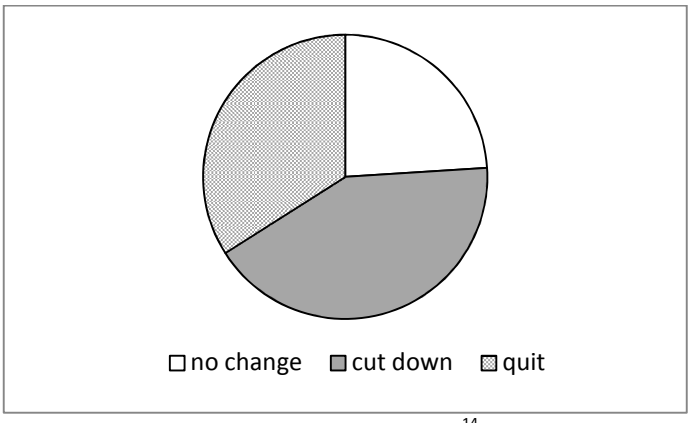


Source: MCS analyses, Graham et al 2010 [10]

Secondly, quitting is only part of a wider pattern of change in smoking habits in pregnancy. In the MCS, the majority (76%) of those who were regular smokers prior to pregnancy reported that they changed their smoking habits when they became pregnant. Most made the change in the first

trimester,[12] a pattern of early-pregnancy changes in smoking patterns confirmed in other studies.[13] In analyses of the MCS undertaken to inform the project, we examined the patterns of change in more detail (Figure 1.2). While a third (34%) of the pre-pregnancy smokers reported that they quit, a larger group (42%) reported that they cut down, by an average of 5 cigarettes a day.[14] Another UK study similarly found that that the majority of women who smoked before pregnancy reported a change in their smoking habits, with cutting down being the most commonly reported response.[15]

Figure 1.2: Smoking behaviour during pregnancy among women who were regular smokers prior to pregnancy, UK 2000/01



Source: MCS unpublished analyses, Prady 2011[14]

In our analyses of the MCS, we examined the social factors associated with cutting down. Compared to those who quit, those who cut down were heavier smokers; they were also more likely to be single and struggling financially and less likely to be having their first baby.[14] Similarly, like those who cut down, the mothers reporting that they made no changes were more disadvantaged than the quitters and less likely to be having their first baby.[14] As this suggests, social disadvantage is not only deeply woven into the patterning of smoking prior to pregnancy and quitting in pregnancy (Figure 1.1); it is also linked to the more complex patterns of continuity and change in smoking behaviour in pregnancy.

Behind the 'snap-shots' of smoking in pregnancy represented in Figures 1.1 and 1.2 lies a more dynamic picture. Because few studies have collected detailed information on smoking behaviour over the months of pregnancy, we know little about patterns over time. But the limited evidence suggests that, while many women quit and remain ex-smokers, a large proportion have more variable and fluctuating patterns of smoking.[16] Many women appear to be locked in a daily struggle to control their smoking habit, moving between cutting down, quitting and reverting back to smoking through their pregnancy, a picture confirmed in our qualitative review. For example, in a large US study of pregnancy, nearly 40% of smokers reported making a serious attempt to quit (not smoking for ≥1 week) but nearly half had started smoking again later in their pregnancy. Similarly, reported consumption levels showed marked within-person variability over the months of pregnancy, with smokers trying repeatedly to cut back on consumption.[13]

Perhaps not surprisingly, changes in smoking habits in pregnancy are often not maintained post-partum. In the MCS, the majority (57%) of women who quit in pregnancy had resumed smoking by nine months post-partum, suggesting that, for many smokers, pregnancy is the context for temporary, rather than permanent, cessation.[10] Patterns of resumption show social gradients, with mothers from more advantaged backgrounds who quit in pregnancy more likely to remain non-smokers after birth.[10] However, while many women resume smoking again after birth, the long-

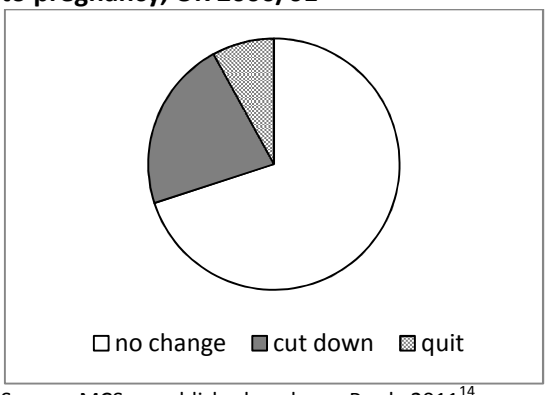
term quit rates for pregnant women are significantly higher than in the wider adult population, where annual quit rates are estimated to be less than 4%.[17]

Thirdly, women's smoking behaviour in pregnancy is closely related to the smoking habits of partners. In an analysis of users of NHS smoking cessation services, the presence of other smokers in the household was identified as an important factor explaining why 52-week quit rates were lower among more disadvantaged smokers.[18] In pregnancy, partner's smoking status is an important predictor of whether the mother smokes prior to pregnancy and continues to smoke through it.[19] It was clear from our review of qualitative studies that smoking was often a shared habit; it was clear, too, that partners exerted an important influence on the smoking habits of women in pregnancy.

To provide a backdrop to our qualitative review, we therefore examined the associations between the smoking patterns of mothers and their partners in the MCS. The study collected information from partners for 70% of the mothers; for this group, there are matched data on the smoking habits of the woman and her partner. Looking at this group, we found the expected congruence in smoking status prior to pregnancy. Among the women who were non-smokers, three-quarters (74%) of the partners were also non-smokers; among the smokers, 70% of their partners were smokers.[14]

When we focused on partners who smoked, we found that the majority reported making no change to their smoking habits post-pregnancy. As Figure 1.3 indicates, over 70% of the partners who smoked prior to pregnancy neither cut down nor quit; among the women who smoked prior to pregnancy, less than a quarter reported that they made no changes (Figure 1.2). Less than 1 in 10 of the partners who smoked prior to pregnancy went on to quit smoking, compared with over 3 in 10 women (Figures 1.2 and 1.3).

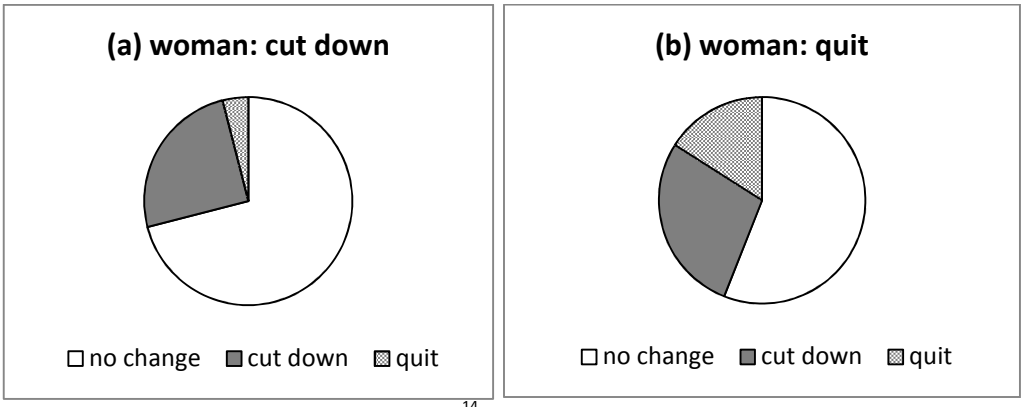
Figure 1.3: Smoking behaviour during pregnancy among partners who were regular smokers prior to pregnancy, UK 2000/01



Source: MCS unpublished analyses, Prady 2011[14]

Partners were more likely to cut down or to quit if their pregnant partner did. But even in these groups, the majority made no change to smoking habits (Figure 1.4). The proportion making changes was highest among the partners of women who quit; in this group, over 40% either reduced their cigarette consumption or quit (Figure 1.4).

Figure 1.4: Smoking behaviour during pregnancy among partners who were regular smokers prior to pregnancy where the woman (a) cut down in pregnancy or (b) quit in pregnancy, UK 2000/01



Source: MCS unpublished analyses, Prady 2011[14]

Together, these three factors – social disadvantage, flux and change in smoking habits, and role of partners – point to the importance of understanding the social contexts of smoking in pregnancy. As NICE's updated guidance on smoking cessation in pregnancy notes, 'many of the women most likely to smoke during pregnancy live in circumstances which make it difficult for them to quit'. [20 (p24)] For those who manage to quit, the contexts of their lives can make it difficult to remain a non-smoker: a recent review of NHS smoking cessation services observes that they 'may experience multiple barriers that make resisting relapse for long-term smoking cessation difficult'.[21] The recommendations that NICE issued alongside its guidance on smoking in pregnancy therefore include a recommendation for research that examines how social factors affect smoking behaviour in pregnancy, including attempts to quit.[20] It is this deeper understanding that the project aims to provide.

1.2 England's public health strategy

England's public health strategy, *Healthy Lives, Healthy People*, is framed by the twin goals of improving health and reducing health inequalities. Its aim is to 'improve the public's health, improving the health of the poorest, fastest' [22 (p52)] by enabling communities to develop interventions suited to their local needs and circumstances.[22] The emphasis is on approaches that take account of the everyday contexts of people's lives, harnessing 'the latest insights from behavioural science … to help enable and guide people's everyday decisions about their health'.[22 (p24)]

Tobacco control occupies a central place in this strategy. Tobacco use is identified as the major preventable cause of premature death,[22 (p18)] and of inequalities in mortality between socioeconomic groups,[23 (p5)] accounting for approximately half of the difference in life expectancy between the lowest and highest income groups.[24] Accelerating the rate of decline in smoking in more disadvantaged groups is therefore central to the Government's aim of 'improving the health of the poorest, fastest'.

The new *Tobacco Control Plan* sets out three 'national ambitions' for reducing smoking prevalence in England. One ambition is to reduce smoking in pregnancy as measured by self-reported smoking status at the time of delivery, from the 14% level recorded for 2009/10 to 11% or less by the end of 2015.[23 (p14)] Reducing smoking in pregnancy can also contribute to the national ambitions to reduce prevalence among adults and among young people. There is evidence that sustained reductions in smoking in pregnancy can reduce prevalence among the wider female population,[25] and thus contribute to a reduction in adult smoking rates. In addition, because of the effect of parental

smoking status on the smoking habits of their children, reducing maternal smoking may also contribute to reducing smoking among young people; as the *Tobacco Control Plan* notes, if children see smoking as part of everyday life, 'they are much more likely to become smokers themselves'.[23 (p19)] For both the adult and child population, reducing smoking in pregnancy can also contribute to the reshaping of social norms around smoking that the *Tobacco Control Plan* seeks to achieve.

The *Tobacco Control Plan* acknowledges that achieving the three ambitions will require stronger regulatory frameworks at national level. But its major focus is on the local level, with emphasis given to designing and delivering services in ways that take account of the smoker's circumstances. In line with the evidence presented in the previous section, the Plan recognises the link between social disadvantage and smoking, and therefore the need to appreciate 'the wide range of social and behavioural factors that… make it harder for tobacco users to quit'.[23]

As part of its emphasis on providing services in ways that recognise the needs and circumstances of smokers, the *Tobacco Control Plan* proposes that smoking cessation services move away from a sole reliance on abrupt quitting and support other routes to quitting. It notes that the Government 'will support the provision of a greater range of options for smokers who want to quit', including the gradual reduction of smoking.[23 (p34)]

While abrupt quitting is the model used in NHS stop smoking services, cutting down to quit is a widely-used approach among the majority of smokers who quit without professional support. Studies suggest that between 40% and 60% of quit attempts start with cutting down.[26] A review of population and clinical studies of smoking (which excluded pregnant smokers) concluded that smoking reduction increases the chances of future cessation,[27] and a systematic review of abrupt quitting versus reducing cigarette prior to quitting found that both approaches produced comparable quit rates.[28] Building on this evidence, England's tobacco control strategy recognises the potential role that cutting down to quit could play in achieving the government's public health objectives.[29]

The evidence on the health effects of smoking in pregnancy points to the importance of abrupt quitting, preferably before conception or as early in pregnancy as possible. Early pregnancy is recognised to be a critical period for foetal development, and foetal development is compromised by maternal smoking.[1, 3] In addition, there is evidence that intake of toxins is not reduced among smokers who report that they have cut down, because of under-reporting of consumption and/or because of the reduced number of cigarettes are smoked more intensively.[15] While we recognise the importance of abrupt quitting in pregnancy for foetal health and development, our synthesis suggests that gradual quitting is an established practice among pregnant smokers.

1.3 Interventions to reduce smoking in pregnancy

Evidence on how to achieve positive changes in health-related behaviours comes primarily from evaluations of interventions. Systematic reviews of these evaluations are playing an increasingly important role in informing public health policy. Following a standardised set of procedures for identifying studies and assessing their methodological quality, systematic reviews are seen to provide the most reliable evidence on 'what works' in public health. They therefore underpin NICE public health guidance, including the 2010 guidance on how to stop smoking in pregnancy.[20]

NICE's formal guidance on how to stop smoking in pregnancy and following childbirth[20]makes eight recommendations that cover interventions to help pregnant women who smoke, to quit. The guidance highlights: the importance of health and social care practitioners identifying women who smoke, whilst acknowledging the difficulties women face in reporting their smoking behaviour; the role of NHS Stop Smoking Services; the role of Nicotine Replacement Therapy and other

pharmacological support in quit attempts; interventions to assist the partners of pregnant women and other household members to quit; the training required by midwives and other health professionals to ensure that interventions are delivered effectively. The recommendations specifically emphasise the pregnant women who are disadvantaged will have additional needs when accessing Stop Smoking Services.

A recent systematic review suggests that interventions to promote smoking cessation during pregnancy are effective in reducing continued smoking into late pregnancy and in improving infant health (reduced risk of low birth weight and preterm births).[30] However, the effects on smoking are modest. Among trials with the lowest risk of bias, quit rates were 3% higher among women receiving the intervention than in the non-intervention group (RR 0.97, 95% CI 0.94 to 0.99). In trials with follow-up beyond the early post-partum period, effects were no longer significant, with no evidence of differences in cessation rates between the intervention and the control groups. A DH project[31] led by the EPPI-Centre is currently undertaking a secondary analysis of the interventions in this Cochrane review. The project is gleaning evidence from the intervention studies on their effects on disadvantaged groups. The findings are to be reported in July/August 2011 so were not available to us when preparing this report. However, this is clearly an important analysis; a systematic review of the effectiveness of smoking cessation services noted that pregnant women face particular challenges in sustained quitting, with the disadvantaged circumstances in which many pregnant smokers live identified as a major barrier.[21]

Interventions to prevent relapse in smokers who had successfully quit have been reviewed in another Cochrane Review which included interventions targeted at women who had quit because they were pregnant.[32] It found insufficient evidence to support the use of behavioural interventions to help quitters to avoid returning to smoking.

Another review found little robust evidence to encourage partners to support their pregnant partner in giving up smoking or to give up themselves.[33] However, some of the evaluations of partner support and cessation in pregnancy provided information on social differentials in intervention effects, and suggested that partners who were more disadvantaged were more likely to drop out of the intervention and less likely to quit. [33] Other studies, too, point to social differentials in effectiveness, with lower quit rates and higher rates of resumption among more disadvantaged smokers.[21, 34-35]

While a key source of insight into 'what works', systematic reviews rarely provide information on influences on smoking behaviour beyond the reach of the intervention. In consequence, they give little attention to the contexts of smokers' lives and the role of social factors – for example, material circumstances, domestic relationships, knowledge and beliefs about smoking – as barriers to, or facilitators of, quitting.[30] In other areas of public health, systematic reviews of qualitative evidence are beginning to provide the contextual information that is largely absent in the effectiveness reviews. These qualitative systematic reviews are explicitly designed to fill this evidence gap. They employ methods which capture the everyday circumstances of the client group, their perceptions of the targeted health behaviour and their views of the barriers and the facilitators to making positive changes in behaviour.[36-38]

Aware of the contribution that qualitative reviews can make to the evidence base for policy, we undertook a review of qualitative studies of smoking in pregnancy with the aim of deepening understanding of the everyday contexts of mothers' lives and, in particular, their views and experiences of trying to make and sustain positive changes in smoking behaviour.

1.4 Summary

The evidence suggests that pregnancy is a period of flux and change in smoking habits, with these patterns shaped by women's social circumstances. Women from disadvantaged backgrounds are more likely to begin their pregnancy as smokers; however, they are less likely to quit and are more likely to resume smoking again after birth.

While smoking cessation is the primary focus of research and policy, most smokers do not quit in pregnancy. The majority report that they cut down or maintain their pre-pregnancy smoking levels – and disadvantaged smokers are disproportionately represented among women who respond to pregnancy in these ways. Further, for most quitters, smoking cessation is time-limited, undertaken for pregnancy only.

Couples tend to share their smoking habits; women who start their pregnancy as smokers are likely to be in relationships with partners who also smoke. While most women change their smoking habits, by cutting down or by quitting, only a minority of their partners make similar changes to their smoking behaviour.

Reviews of interventions to reduce smoking in pregnancy suggest that, at best, they have modest and time-limited effects.

The marked socioeconomic gradients in maternal smoking and quitting, together with the limited evidence from intervention studies, underline the need for a deeper appreciation of the lives and experiences of smokers.[39-40] As has long been recognised, 'an effective health service must be knowledgeable about the social and economic circumstances of those it serves'.[41 (p10)]

2. AIMS

Our main aim is to enrich the evidence base informing policies and interventions to reduce smoking in pregnancy by including evidence from qualitative studies. Through a systematic review of qualitative research on women's smoking, the objective of the project is to provide evidence on how women's circumstances and experiences influence their smoking behaviour in pregnancy, including their attempts to quit.

A separate project[31], led by the EPPI-Centre and funded by the DH Policy Research Programme, is re-analysing data from the 2009 systematic review of interventions to reduce smoking in pregnancy.[30] The project is recording information, including qualitative data, captured in the intervention studies in the systematic review. We therefore excluded intervention studies containing qualitative data from our qualitative review.

As a supplementary question, we assessed whether contextual factors influencing smoking behaviour in pregnancy are considered in systematic reviews of interventions to reduce smoking in pregnancy. This was addressed by examining recent systematic reviews focused on smoking cessation in relation to pregnancy.

3. METHODS FOR THE QUALITIATIVE SYSTEMATIC REVIEW

3.1 Searching for studies

Relevant studies were identified through (i) searches of electronic databases, (ii) internet searches via the ESRC Major Investment Websites and ESRC Selected External Sites, (iii) scanning reference lists of relevant papers, and (iv) consulting experts in the field. All resources were searched from 1976 onwards; the selection of the start date was based on expert advice and a paucity of studies prior to 1976.

For stages (i) and (ii), three sets of search terms were used: qualitative terms, smoking terms, pregnancy and social disadvantage terms. A draft strategy was developed in MEDLINE and, following testing against a sample of papers and advice received from the Project Advisory Group, the final search strategy was agreed. It was then adapted to run in CINAHL, PsycINFO, Social Sciences Citation Index (SSCI) and the Economic and Social Research Council (ESRC) database. These sources were selected because of their potential to identify grey literature, book chapters, PhD theses, sociological literature and smaller qualitative research studies. This is in addition to the medical literature coverage provided by MEDLINE (see Appendix 1 for the search strategies).

Citations from the literature search were downloaded into an Endnote library. Two reviewers independently screened all titles and abstracts following the decision process outlined in Figure 3.1. Discrepancies were resolved by discussion, or by referral to a third reviewer when necessary.

3.2 Inclusion criteria

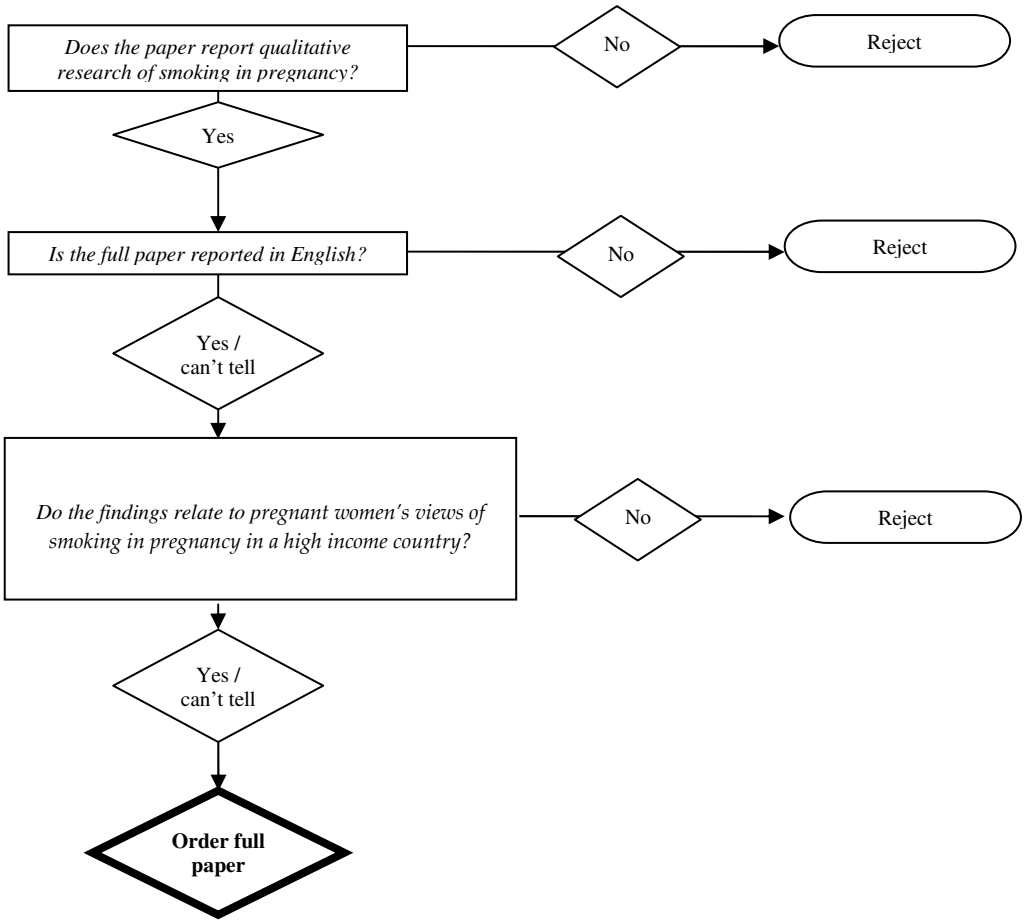
Published and unpublished studies reported in English which met the following criteria were eligible for inclusion:

- Studies conducted with pregnant smokers in a high-income country which matched the stage of the cigarette smoking epidemic reached in the UK (i.e. a strong association between social disadvantage and cigarette smoking among women and men)

- Studies using a qualitative research method to investigate how the circumstances of women's lives influence their smoking behaviour during pregnancy and/or any perceived barriers to, and facilitators of, quitting in pregnancy

Studies focusing on women in the post-partum period were excluded, as were studies focusing on partners or health professionals' views about pregnant women's smoking.

Figure 3.1: Abstract/title screening process



3.3 Data extraction and quality assessment

Data were extracted from each paper that related to the aim of the research, type and number of participants, methodology, methods of data collection, methods of analysis, results (see Appendix 2 for a sample data extraction form). Data were extracted by one researcher and checked by a second. These data are presented in Appendix 3.

Papers were appraised for quality by one researcher and checked by a second using a quality appraisal checklist.[42] Details are in Appendix 4. The checklist consists of a set of criteria relating to study methodology and the presentation of results, against which papers are rated using a 4-point rating scale, ranging from 'good' (4), through 'fair' and 'poor' to 'very poor' (1). Papers were assessed using eight of the nine quality criteria, with each paper receiving a quality score between 8 and 32. (The final criterion, relating to 'implications and usefulness', was not used, as we did not regard it as a measure of research quality). All papers were discussed by the review team prior to inclusion and any disagreements were resolved by consensus. We did not have an *a priori* quality threshold below which we would exclude studies, but considered it important that a transparent and reliable assessment was made of the quality of the studies included in the synthesis.

3.4 Conducting the synthesis

The synthesis was conducted using meta-ethnography,[43] an approach to research synthesis widely used for the synthesis of qualitative studies.[44-46] Atlas-ti Software was used to manage the data arising from the primary studies.[47]

There were four iterative phases to the meta-ethnography (Table 3.1). The first phase of our meta-ethnography involved a careful reading of the studies to map their social contexts and findings. In the second phase, we began to construct a more detailed picture of how the studies were related. The findings from each study were transcribed verbatim from the original papers into text files, including direct quotations where reported. These text files were imported into Atlas-Ti. The most recent studies were coded first, to ensure that evidence of contemporary experiences of smoking in pregnancy drove the development of codes. Codes were assigned line-by-line to authors' interpretation of findings within the text files. We coded participants' accounts in the same way where they provided evidence relating women's experiences not captured in the authors' interpretations. This is consistent with approaches to the analysis of qualitative data and the broader qualitative emphasis on understanding experience within a social context.[48,49]

Findings which occurred in more than one paper were given the same code. Thus, as subsequent papers were read, findings were allocated to existing codes where possible or new codes were created.

In the third phase of meta-ethnography, studies are 'translated' into one another. We compared the identified codes to establish whether they could be merged into broader analytic categories, a technique known as Reciprocal Translation Analysis (RTA).[43] The aim is to protect the characteristics of each study, whilst, at the same time, identifying points of convergence and divergence in the evidence presented across the different studies.

The fourth phase focused on these 'translations'. We examined and compared translations to establish if some were able to encompass others to identify the common 'lines of argument' that ran through the studies. These 'lines of argument' represent the wood that becomes evident when the trees are viewed together: the patterns running through women's experiences of smoking that can be discerned when evidence from multiple studies is combined and compared.

Table 3.1: Phases of meta-ethnography (adapted from Noblit and Hare 1988) [50]

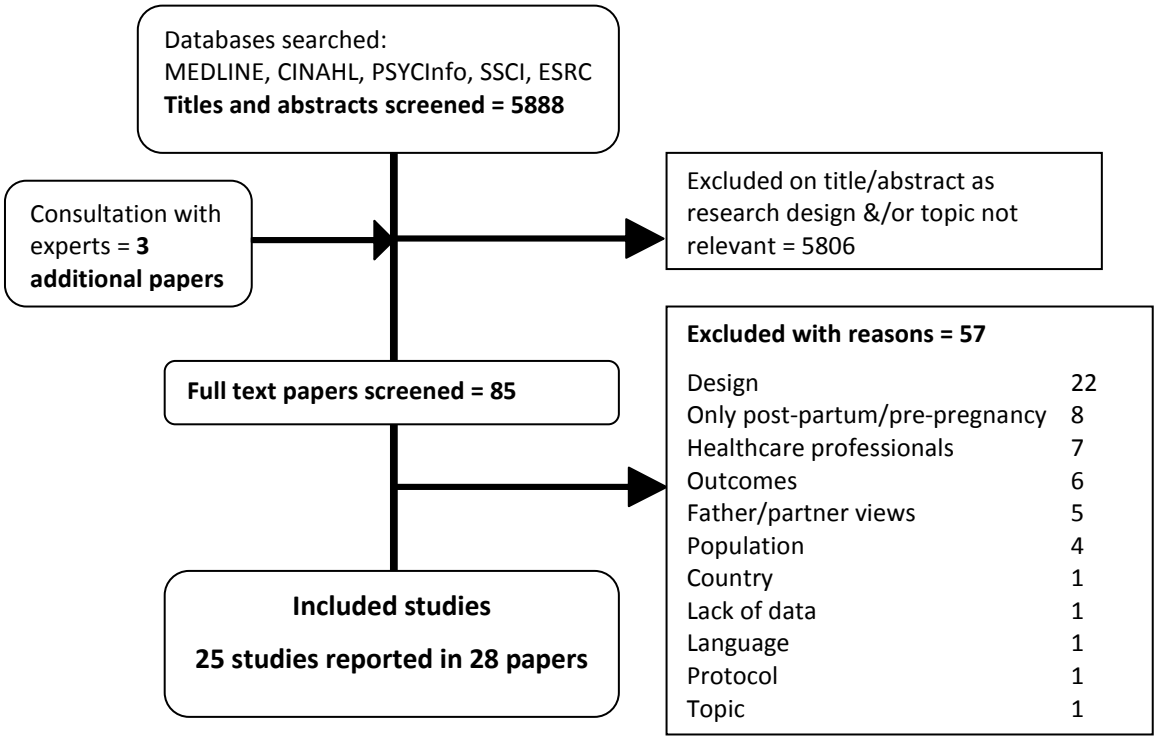
Phase of meta-ethnography	Processes involved
Phase 1 Reading the studies	Studies are read to develop an understanding of their position and context before being compared to others. Repeated re-reading of studies to identify key findings.
Phase 2 Determining how the studies are related	Determining the relationships between individual studies by compiling a list of the key findings in each study and comparing them with those from other studies
Phase 3 Translating the studies into one another	Determining the similarities and differences of key findings in one study with those in other studies and translating them into one another. The translations represent a reduced account of all studies. (First level of synthesis)
Phase 4 Synthesising translations	Identification of translations developed in Phase 3 which encompass each other and can be further synthesised. Expressed as a 'line of argument' (Second level of synthesis)

4. FINDINGS: QUALITIATIVE STUDIES IN THE SYSTEMATIC REVIEW

4.1 Results of searching and application of inclusion criteria

The electronic searches yielded 5888 records of potentially-relevant papers (e.g. journal articles, doctoral theses, unpublished reports etc). Consultation with experts identified 40 papers, three of which were not picked up through the electronic searches. Eighty five potentially relevant papers were obtained in full text and independently assessed by two reviewers to determine their eligibility for inclusion. Fifty six papers were excluded at this point as they did not meet the inclusion criteria (i.e. they did not report qualitative research addressing smoking in pregnancy in high income countries); one additional study was available only as a short abstract and could not be included due to lack of reported data.[51] It was agreed by the review team that 28 papers (relating to 25 studies) met the inclusion criteria and should be subject to data extraction and quality assessment (Figure 4.1) and (Appendix 3). The list of excluded papers is shown in Appendix 5.

Figure 4.1: Flowchart of study selection



Most studies (22 of 25) had one related paper. However, three studies had two outputs (Table 4.1). Two of the studies (Kennison and Lawson) were doctoral theses, with a sub-set of findings from the thesis reported as a journal article.[52-55] The thesis-and-article were therefore treated as one paper, with additional information taken from the thesis and added to the data extracted for the journal article. One study was reported in two journal articles,[56-57] with the two articles addressing different aspects of smoking in pregnancy. The two articles were therefore treated as separate papers. Our review is therefore based on 26 papers reporting on 25 studies.

Table 4.1: Outputs from the same study

Study	Papers
Kennison	Kennison (2009) journal article [53] Kennison (2004) thesis[52]
Lawson	Lawson (1994) journal article [55] Lawson (1993) thesis [54]
Bottorff	Bottorff et al (2006) main article reporting on the study [56] Greaves et al (2007) additional article focusing on three case studies [57]

The quality scores for individual papers ranged from 11-29 (Appendix 6); the majority of the papers were of good to fair quality. The lowest scoring paper (Wakefield et al 1998 – Australia[58]) was an outlier scoring 11, with the next lowest score being 17. This paper was published as a letter so did not meet many of the criteria required to obtain a higher score,[58] however the findings within it were considered by the review team to be important to the synthesis. The quality of the UK papers varied, with four papers scoring between 17 -19 [59] [60-62] and five scoring between 20-29.[63-66,80] As the all the included papers were of reasonable quality and reporting issues were responsible for the paper that scored lowest, we did not 'weight' any papers within the synthesis on grounds of quality.

The search for studies also located one systematic review of qualitative studies which explored barriers to quitting smoking in pregnancy.[67] This was published after our study began and included seven studies, all of which are included in our review. We do not regard our review as duplicating our study, which provides a more detailed analysis of the everyday circumstances and experiences of smokers, including experiences of trying to quit.

4.2 Description of the included studies

4.2.1 General study characteristics

Number of participants: The 25 studies reported the experiences of approximately 630 women (in two studies, the exact sample size was not reported).[60-62] The mean sample size across these studies was 29 participants (range 11-57). Three studies included some data from partners; these data were not extracted.

Study methods: While all the studies collected qualitative data, only 12 identified the qualitative methodology underpinning the research. Most commonly, this was reported as a form of grounded theory. The studies recruited participants through ante-natal clinics within hospitals or, less commonly, through community settings; in two studies, participants had taken part in other pregnancy-related research. Women's accounts of their experiences were directly recorded either in an interview or through a focus group. Interviews/focus groups typically took place at the participant's home or in a private room within an ante-natal clinic, and were taped recorded and transcribed. Most studies captured women's experiences at a single time-point; however, three studies interviewed women more than once.[56-57, 68-69] In the majority of the studies, the women were pregnant at the time of interview/focus group but some studies relied on retrospective data, in which women reported their experiences in pregnancy although the data were collected post-partum (Table 4.2).

Table 4.2: Stage of pregnancy when interviews were conducted

Was stage of pregnancy reported?	Details
No details reported	Author contacted for further information but no details were forthcoming[60]
All participants were pregnant at time of the interview.	No further details reported on pregnancy stage[58-59, 62, 64, 66, 70-71]
Pregnancy stage specified (single interviews)	All participants were in their first trimester[72]
	All participants were in 16th to 18th week of pregnancy[73]
	All participants were in 28 to 40 weeks of pregnancy [61]
	Pregnancy state reported: <20 weeks n=6, 21-30 weeks n=4, 31-40 weeks n=5 [65]
Pregnancy stage specified (multiple interviews)	Interviewed weekly during first pregnancy until 6 weeks postpartum [54-55**]
	All participants were less than 28 weeks pregnant at first interview, 3 further interviews until birth[6868]
	3 interviews at 'early stage' (no details), 36 weeks and 3 months postpartum[69]
Mixed groups (some interviewed in pregnancy, some after birth)	All participants were pregnant or had a child under 5 years[63]
	All participants were pregnant or had delivered in the last 2 years[80]
	All participants were pregnant or had delivered in last 6 months[52-53, 74]**
	All participants were either pregnant or were mothers[75]
Post-partum (single interview)	All participants were interviewed at 3+ months[76]
	All participants were interviewed 2-3 years postpartum[77]
	All participants were interviewed once at 3 months to 1 year postpartum following a pregnancy smoking programme[78]
	Women had delivered during two specified months but time of interview uncertain[79]
Post-partum (multiple interviews)	All participants were interviewed starting 2-3 weeks postpartum and repeated at 3-6 months[56-57]**

** Two papers from one study

Data analysis: The most frequent method for analysis was a form of thematic content analysis. Where a methodology was reported, the analyses described in the paper appeared to be appropriate to this.

4.2.2 Study Locations

Most studies were conducted in the US or the UK; the remainder were based in Scandinavia (n=4), Australia (n=3) and Canada (n=1) (Figure 4.2). UK studies were located in England (East Surrey, Leicestershire, London, Oxfordshire, South Yorkshire) and Northern Ireland (in the area of the Northern Health and Social Services Board, Ballymena); one study did not give its location. US studies were based in cities in the north, mid-west, south-west and eastern states.

4.2.3 Study timescales

Only two studies were published before 1990[59, 62], and the majority (n=17) were published since 2000 (Figure 4.3). More details of the study populations are shown in Appendix 3.

Figure 4.2: Location of the studies by country

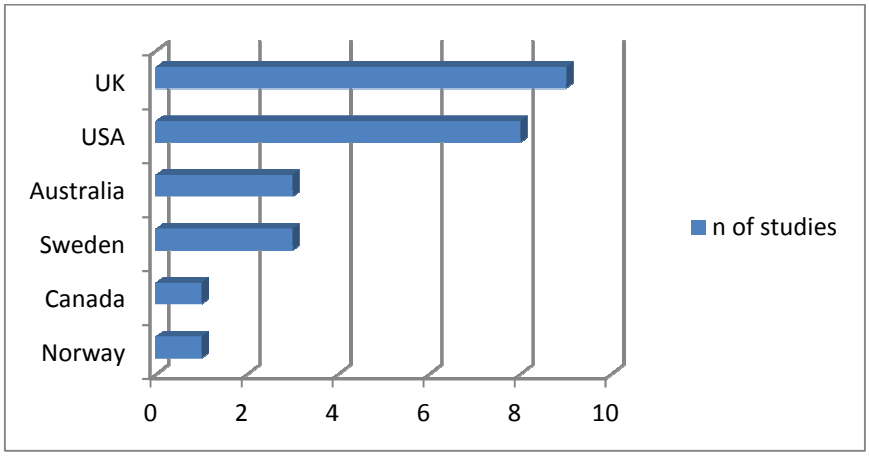
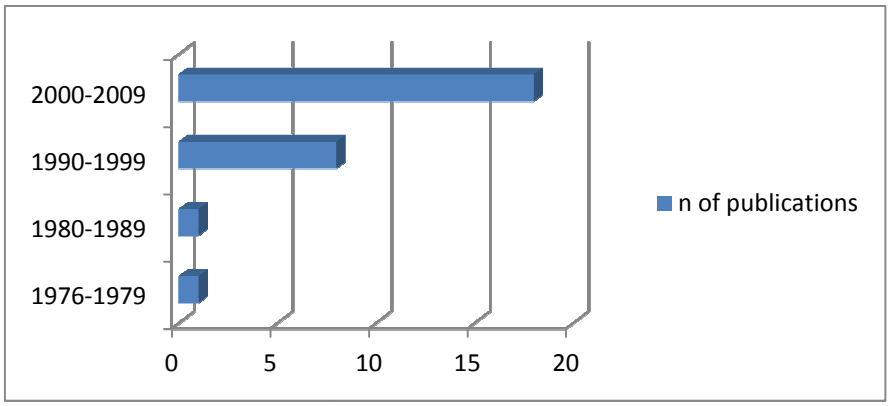


Figure 4.3: Publications by decade



4.2.4 Social profile of study participants

Age of participants: Age was reported in most studies, although in a variety of ways, including mean age and proportions in different age groups. It was evident that most participants were between 20 and 30 years. Two studies focused on younger women in their teenage years.[54-55, 58]

Smoking status of the participants: All studies included accounts from women who had been smokers prior to pregnancy and who went on either to quit or to continue to smoke in pregnancy. However, one study also included participants who had never smoked.[63] Indicators of smoking status varied considerably. While some studies described participants simply as smokers, others categorised smokers by level of consumption (reported variously as packs per day/week, cigarettes per day/week); one study recorded smokers as either 'regular' or 'cutting down'.[73]

Ethnicity: Less than half the studies reported ethnicity of the participants (n=9). Scandinavian and UK studies were less likely to report the ethnic background of their participants than those conducted in North America and Australia. Four papers explicitly sought to recruit participants from

specific ethnic and cultural backgrounds, including white, Latino/Hispanic, African American, Mexican American, Native American and Indigenous Australian[68, 74-75, 78].

Socioeconomic status: was reported in most studies. Educational attainment was the most widely-used measure. Household income, occupation/occupational class, employment status (employed/unemployed) and area-based measures (e.g. Index of Multiple Deprivation) were also used.

Most studies included sufficient information on socioeconomic position to indicate that the majority of participants were disadvantaged. Nine papers explicitly stated they recruited participants from low-income groups and/or disadvantaged areas,[55, 58, 63, 66, 68, 74-75, 78-79] with one of these studies additionally recruiting more affluent participants.[63] Eleven papers did not specifically target disadvantaged groups, [53, 56-57, 59, 61, 64-65, 69, 71-72, 76-77] but the information given on the circumstances of the participants suggests that, in line with the social gradients in smoking evident in the pregnant population as a whole, many were disadvantaged. Five papers [60, 62, 70, 73,80] gave little information on the socioeconomic composition of the sample.

Cohabitation Status: Thirteen papers did not report the cohabitation status of their participants. Combining data across papers with information on cohabitation status and sample size, 65% (187/286) were married or cohabitating and 35% (99/286) were single.

4.3 Synthesising evidence from the studies

As described in section 3.4, we built up our synthesis in four stages (see Table 3.1). Following a careful reading of each study (phase 1 of the process), the data were coded in Atlas-Ti by a single member of the research team (KF). This resulted in the formation of 357 codes (phase 2). These codes were compared and provisionally grouped into broad areas of similarity (translations) during Reciprocal Translation Analysis (RTA). The provisional translations and their corresponding codes were presented to the research team (HG, AS). The team looked in detail at how codes from the individual studies related to each other, and how these could be presented in a reduced form (translations) whilst representing the essence of individual study findings. After extensive discussion, 14 translations were created. An example of this process showing which codes contributed to the development of one translation 'Centrality of smoking' is given in Figure 4.4. .

The fourteen translations are listed in Table 4.3, together with information on the number of codes, related items of evidence and papers that contributed to them. As the table indicates translations were developed from multiple codes, items of evidence and papers. All the translations were informed by multiple papers but no translation was informed by all of them. Full details of how the translations were developed from the codes are given in Appendix 7. The process of forming translations represents phase 3 of the process outlined in Table 3.1, and is the first level of the synthesis in a meta-ethnography.

Table 4.3: Formation of translations

Translations	A. Number of contributing codes	B. Number of contributing items of evidence	C. Number of contributing papers	Contribution to line of argument
Centrality of smoking	46	73	18	*Being a smoker*
Benefits of smoking	12	23	8	
Guilt of being a pregnant smoker	25	50	13	*Being a pregnant smoker*
Social disapproval	19	37	10	
Knowledge and beliefs	66	104	20	
Smoking within partnerships	30	54	12	
Triggers for smoking	13	24	14	
Motivation to quit	24	45	14	*Quitting & trying to quit smoking*
Trying to quit	34	59	18	
Methods of quitting	2	6	4	
Personal consequences of quitting	11	13	7	
Cutting down	20	32	13	*Continuing to smoke*
Continued smoking	12	18	10	
Rationalising continued smoking	17	46	13	

Figure 4.4: Codes contributing to the translation 'centrality of smoking'

Women started smoking at school	Belief they could stop at any time	Cigarettes provide identity	Stress is a strong reinforced of smoking dependency	Context of smoking embedded in the stressors of life
Being a smoker was shameful	Cigarettes were lit out of habit	Smoking the only remaining form of coping with life stress	Smoking continues despite causing health problems	Being a smoker perceived as a negative experience
Smoking is a low health priority	Smoking is a best friend and stable support	Cigarettes part of social network	Smoking is seen as best possible choice given the existing life situation	Women get fixated by smoking
Smoking enabled control over out-of-control existence	Smoking gives a feeling of protection	Cigarettes made women feel manipulated	Women smoked from an early age	Women wanted to be the master of the cigarette
Cigarettes became part of their identity	Smoking provides control over stressful situations	Cigarettes play a significant role in women's lives that is not affected by pregnancy	Women wanted more control over their smoking but knew they couldn't manage this	Difficult like circumstances make smoking cessation a low priority
Cigarettes control women	Smoking is a social experience	Habit of smoking is greater than the need	Smoking is a way of controlling hunger and saving money on food	Women smoke more in the company of smoking friends
Smoking is an addiction	Cigarettes affected their whole life	Smoking is a coping mechanism for stress and a hard life	Smoking is an addiction to be liberated from	Stress triggers smoking
Domestic environment of smokers leads to powerlessness and filed quit attempts	Smokers prioritise spending money on cigarettes	Medication used to continue smoking	Smoking used to manage life stresses despite compromised health	Young children are identified as the only form of social support
Lack of domestic support increases women's stress	Lack of family support for pregnancy causes stress	Partners monitor women's smoking	Partners taunt women by smoking	Social pressure may increase stress levels
		Women were intimidated by partners over smoking and quit attempts		

The fourth phase of the analysis focussed on interpreting and integrating the translations to identify the linkages (or 'lines of argument') between them. This is the final phase, and represents the second and final level of synthesis in a meta-ethnography. From the 14 translations, four lines of argument were developed through discussion within the research team:

- being a smoker
- being a pregnant smoker
- quitting and trying to quit smoking
- continuing to smoke

These lines of argument captured the importance of social context in shaping women's experiences of smoking and, in particular, their attempts to change their smoking habits, for example by trying to cut down and/or quit.

4.4 Lines of argument

Together, the four lines of argument trace the journeys made by women who were smokers at the start of their pregnancy and are discussed in turn in the chapters that follow.

As Figure 4.5 indicates, the journeys begin before pregnancy, with smoking woven deeply into women's lives and identities (*being a smoker*). Becoming pregnant and therefore *being a pregnant smoker* marked a critical juncture in women's smoking careers. Women experienced a fundamental tension between being a smoker and being pregnant.

Quitting resolved the tension, and accounts of *quitting and trying to quit* in pregnancy mark an important stage in the smoker's journey. As the accounts make clear, quitting was often perceived as temporary rather than permanent, a break from lifelong smoking undertaken for pregnancy only. An alternative response to the tension of being a pregnant smoker was *continuing to smoke*, for instance by cutting down or by making a case for continuing to smoke at pre-pregnancy level.

These different journeys through pregnancy – trying to quit, quitting, cutting down, maintaining previous smoking levels - cross-cut each other. For example, women described how attempts to quit could not be sustained, and how cutting down could be both a stepping stone to quitting and a positive change in its own right; both were seen to reduce the risks to the health of their unborn child.

In describing these journeys through pregnancy (in chapters 5 to 8), the dates and locations are noted for all the studies from which women's verbatim accounts are taken.

Figure 4.5: Lines of Argument

5. FINDINGS: BEING A SMOKER

For women who smoked prior to pregnancy, being a smoker was:

- central to their lives, an long-established identity that was both was both a dependence that was hard to break and a resource in times of stress;
- seen as bringing important psychosocial benefits. It was a habit associated with pleasure: one they enjoyed and they enjoyed sharing with their partners;
- if they had not become pregnant, there is little evidence to suggest they would have considered changing their smoking habits.

5.1 Introduction

As noted in chapter 4, the majority of the study participants were living in disadvantaged circumstances. The process of analysis suggested that their experiences could be represented as a journey: from *being a smoker* pre-pregnancy, to *being a pregnant smoker* and either trying to and succeeding at *quitting* or *continuing to smoke*.

The focus on being a smoker was developed from two 'translations', relating to the ***centrality of smoking*** in women's past and current lives and the perceived ***benefits of smoking*** (see Figure 4.5). Although there were less data contributing to the translation ***benefits of smoking*** than others, we considered that it was essential to include it as a separate item as it was central to the experience of being a smoker prior to pregnancy. Eighteen of the 25 included papers contributed to one or both of these translations.

5.2 Centrality of smoking

The analysis pointed to the centrality of smoking to women's identity and their everyday lives. The studies described how smoking was deeply woven into women's biographies; a habit forged from the circumstances in which they grew up and the paths their lives have taken since.

Women spoke of how they had started smoking at an early age, and identified themselves as 'committed smokers'.[65, 77] Some women described how smoking was a habit learned from their parents:

> *'If you've seen your parents with a cigarette in their mouth all these years, it feels like the most natural thing in the world to smoke as you grow up'* (Lendahls et al 2002 - Sweden[77])

From these early beginnings, cigarettes became integral to daily life, a taken-for-granted part of one's identity.[52-53, 59-60, 77]

> *'It felt like breathing to me...I never thought I wouldn't smoke. I always thought I would'* (Kennison 2004/2009 - USA[52-53])

A cluster of factors emerged to explain why smoking became so enmeshed in women's lives, factors that shed an important light on why women continue to smoke in pregnancy despite perceiving it as harmful and shameful (see chapter 6).

Firstly, smoking was felt to give women a sense of control over an out-of-control existence.[68, 72] Many women characterised life as a struggle in which smoking was one of the few remaining pleasures (Wakefield et al 1998). Smoking was described as a refuge; giving it up would be like giving up the final remaining coping strategy.[68] Cigarettes were viewed by women as a 'best friend' and a constant support, providing a sense of stability within a chaotic world. Women saw cigarettes as being there with them through 'thick and thin', enabling them to survive turbulent periods of life.[54-55] Smoking was also seen as a way of managing the dilemmas arising from a hard life; a detailed example being the use of smoking to control hunger in order to save money on food.[66] Taken together, this suggests that smoking was seen as the best possible choice given a woman's existing life situation.[59, 70]

> *'When I was pregnant the first time I smoked throughout the whole pregnancy. I was so young then, 21 years old. He didn't want me to have the baby, but I decided to give birth anyway and to manage all by myself. We lived together, but he still didn't want the baby. The situation was difficult and I smoked more then than I usually do*.' (Abrahamsson et al 2005 – Sweden[70])

Secondly and relatedly, women cited stress and stress relief as the reason that they smoked. Smoking was seen as a habituated response to the stressors of life. It was perceived both as triggered by these stressors and as a way of relieving, managing, controlling and coping with them.[52-53, 58, 61-63, 66, 68, 71-72, 75, 78] Sources of stress varied but were closely linked to the circumstances of women's lives and included unsupportive or abusive partners, caring for other young children, unstable jobs or domestic situations, and being economically vulnerable. In some cases, women identified their own young children as their only form of social support.[68] Women portrayed the ways in which cigarettes helped them manage the stress in their lives, both domestically and at work, explaining how stress arising from situations that felt out of their control was linked with a need for tobacco.

> *'Everybody smokes and I've never thought about the money, even when we were having no job . . . I got my cigarettes. I would not buy something else and I would get my cigarettes, 'cause that was something I needed . . . I wanted it but it was also a need'* (Kennison 2004/2009 - USA[52-53])

> *' I sit here and often I think if I smoke a cigarette I will be ok...I get mad, but I don't even remember what I get mad over, but I smoke a cigarette…I'll deal with the problem [through] smoking a cigarette'* (Cottrell et al 2007 - USA[72])

> *'If I'm stressed out, it calms me down; it gives me a minute to think, especially at work. We get stressed, we step out to take, you know, smoke a cigarette and I'll calm down. It's the same thing when I'm upset, talking on the phone. It's just a break from whatever my normal routine is . . . it's definitely a stress reliever, that's the reason I smoke'* (Kennison 2004/2009 - USA[52-53])

> *'I need to smoke less, but I know I get irritable myself if I've gone five hours without a cig - I can find myself getting more and more annoyed with the kids until I have a cig to calm down'* (Maclaine & Clark 1991 - UK[61])

Thirdly, smoking within their social networks emerged as an important factor. One of the ways women sought to deal with stress was to socialise with friends and family. Whilst providing a crucial means of support, social networks were seen to further contribute to women's smoking. Women

reported how cigarettes were embedded in their everyday lives as part of their social activities and how being in the company of their smoking friends led them to smoke more.[59, 65-66, 71, 77, 79]

> *'Smoking is something you do with your friends. That's the way it is when you're on maternity leave, you sit together and have a smoke'* (Arborelius & Nyberg 1997 - Sweden[79])

> *'You give up for a couple of weeks and….your mother comes over to see you – smoking – it's hopeless. You have to join her...all my family smoke'* (Hotham et al 2002 - Australia[71])

Fourthly, women emphasised the role that nicotine dependence played in their continued smoking. They regarded smoking as an addiction from which they needed to be liberated.[52-53, 64, 70-71] There was a commonly-voiced feeling that they had become enslaved by smoking, with their life revolving around it. Cigarettes were priority purchases, taking precedence over other everyday items; despite it causing health problems, women continued to smoke, at times using medication such as inhalers to enable them to do so.[69, 71] This led to feelings that cigarettes controlled women and made them feel manipulated.[70, 77, 79]

> *'This terrible dependence . . . smoking controls me, I don't control my smoking. Cigarettes control me and not vice versa'* (Arborelius & Nyberg 1997 - Sweden[79])

Women often only recognised their addiction when they tried and then struggled to quit. The acknowledgement of the difficulty of quitting led some women to compare smoking with addiction to illegal substances.

> *'It's hard when you quit like that. I mean you feel like you're coming off of drugs or something. It's hard, very irritable. You feel yucky and it's hard . . . I worked on quitting. . . It's awhl, you know. It's bad. It's like being a drug addict, I think or worse. I mean it's so accessible, not like you have to go, you know, it's legal and everything else. Go right to the store and there it is. You don't have to hunt your guy you buy from or whatever, it's right there'* (Kennison 2004/2009 - USA[52-53])

Some women recognised that they wanted more control over their smoking, but they acknowledged that they could not manage this.[66, 70, 77]

> *'I've been smoking so long, it's habit and it's hard to kick. I would love to stop.'*

> *'I smoke now because I've got to… Unfortunately I can't stop. I wish I could'* (Tod 2003 - UK[66])

5.3 Benefits of smoking

Closely related to the centrality of smoking were the positive aspects of smoking. These benefits were presented in ways that detached them from the negative perceptions of smoking that women also held.

Women described how they loved smoking. Smoking cigarettes was a source of enjoyment that additionally enhanced their lives through the social experiences, company, comfort and reward associated with it .[52-53, 62, 71-72, 75] What was particularly valued was the protected period of time smoking afforded individuals and couples; a time that was free of other responsibilities and which often marked the end of a period of work. Smoking was seen to provide an opportunity to relax, as well as being associated with providing positive physical sensations such as a brief high.[52-53, 59, 71, 77]

'..after lunch. I clear away and wash up and put on the telly for Stevie. I'll have a sit down on the sofa with a cigarette and maybe a cup of tea. It's lovely, it's the one time in the day I really enjoy and I know Stevie won't disturb me.. . [what do you do?] I just sit and enjoy being on my own!' (Graham 1976 - UK[59])

'It's relaxing . . . there's a relaxation feeling that I can get from smoking. . .' (Kennison 2004/2009 - USA[52-53])

In a similar vein, a study of young mothers noted that, in lives marked by material deprivation and social instability, smoking was viewed as a rare pleasure.[58]

5.4 Summary

Taken together, women's accounts of the centrality and the benefits of smoking suggest that smoking is deeply enmeshed in their lives, both socially and emotionally. Smoking emerges from the studies as providing an escape and a pleasure – transitory but tangible – from a difficult life that few expected to get any better. It is a habit that was unlikely to be fundamentally questioned if it was not for the fact of becoming pregnant.

6. FINDINGS: BEING A PREGNANT SMOKER

- becoming pregnant made women question their identity as smokers; being a *pregnant* smoker was not an identity with which they felt comfortable;
- being a pregnant smoker triggered feelings of guilt and anxiety about the risks to their unborn child and exposed them to social disapproval; concealing their pregnancy and/or their smoking was a common reaction;
- there was a general awareness of the risks of smoking for their unborn child, with the most commonly mentioned risk being low birth weight;
- however, there was a common perception that scientific evidence (which emphasised risks to the baby) was out of line with their personal experience (which suggested the risks were exaggerated);
- additionally, women described a lack of consistency between the scientific evidence and the low priority they felt was given to smoking cessation by some healthcare professionals;
- partners play a central role in influencing women's smoking behaviour in pregnancy, both through their smoking behaviour and through the wider dynamics of the couple's relationship;
- the wider circumstances that had long sustained women's smoking habits persisted - and could worsen - in pregnancy; pregnancy often brought additional challenges, including the loss of structured routines and social networks that resulted from giving up paid work.

6.1 Introduction

Becoming pregnant and therefore becoming a pregnant smoker marked a critical juncture in women's smoking careers. It prompted a re-assessment of a habit that women experienced as engrained in, and supporting them through, their lives. Running through this line of argument is a fundamental tension between being a smoker and being pregnant.

The tension was manifested in a sense of ***guilt*** about being a pregnant smoker, a guilt fuelled by an awareness of the risks of smoking for the unborn child and reinforced by the ***social disapproval*** that women perceived from those around them. Yet, as the section on ***women's knowledge and beliefs about smoking in pregnancy*** makes clear, other sources of knowledge dilute the message about risk and provide a buffer against the social censure of others. Evidence derived from personal experience is seen to suggest that smoking in pregnancy is not damaging to the health of children; in addition, women reported that smoking does not receive the attention they expected from health professionals responsible for their care in pregnancy.

Smoking within partnerships emerges as another part of the experience of becoming a pregnant smoker. As well as the influence of partner's smoking status on women's smoking behaviour in pregnancy, the synthesis points to the importance of the wider dynamics of women's relationships with their partners. In unequal relationships where women exercise little agency, the woman's smoking behaviour appears to become another arena in which the male partner controls what happens in the home. Finally, the line of argument about being a pregnant smoker considers ***triggers for smoking***.

6.2 Guilt of being a pregnant smoker

The studies describe how, for many women, the recognition that they were no longer simply smokers but were *pregnant* smokers triggered intense feelings of personal responsibility and inadequacy. The dominant emotion that women reported was guilt.

The guilt turned on concerns of harm to the unborn child[52-53, 59, 61, 66, 68, 70, 79]; in addition, one study reported a concern that the baby may be born addicted to nicotine.[68]

> *'I don't want to hurt my child. But I haven't quit smoking and I have such a bad conscience because I am hurting my poor child'* (Abrahamsson et al 2005 - Sweden[70])

> *'If I look at the books and see the pictures....29 weeks and he's nicotine in his system. Then, it does knock me sick to me stomach and I feel ever so guilty, you know'* (Tod 2003 - UK[66])

> *'It's the cigarettes really that, made me worry. I knew if anything were wrong with her, I'd blame the cigarettes and I'd know I'd done it myself, and my husband would know I'd done it. Knowing that, afterwards, that's what frightens me'* (Graham 1976 - UK[59])

The studies also reported more general feelings of guilt. The women described how they felt as if they were 'doing something they shouldn't be doing',[52-53, 79, 80] a negative self-evaluation reinforced by wider social disapproval and pressure to quit (see sections 6.3 and 6.5 below). Women described feeling ashamed of being smokers; they felt hunted by anti-smoking propaganda and were critical both of themselves and of other women for continuing to smoke when they were pregnant.[52-53, 77] Not surprisingly, smokers expressed a desire to not be regarded as a smoker by others.[52-53, 79] A small number of studies noted that the anxiety and guilt of smoking in pregnancy could – paradoxically – be a trigger to smoke.[62, 74, 79]

> *'You have such feelings of guilt inside you, deep down, so if someone starts pointing their finger at you, like 'You shouldn't be doing that', then you feel even worse and in the end it becomes too much so you have a cigarette'* (Arborelius & Nyberg 1997 - Sweden[79])

> '*I tried to give up smoking with him, but I seemed to smoke more, I was up to about 40 a day, maybe more'* (Oakley 1989 - UK[62])

At the same time, it was recognised that concern and guilt over smoking in pregnancy could oscillate, as illustrated by this quote:

> *'I feel bad when I smoke. I'm like, 'God my baby's smoking', and I'll put my cigarette out. But later I'll rub it off and keep smoking my cigarette'* (Dunn et al 1998 - USA[74])

Overall, the picture that emerges from the studies is that the guilt induced by smoking in pregnancy was a major motivator for making changes in smoking habits. Pregnancy could also give women a moral authority over smoking environments that they were normally denied. It could give them a mandate to insist on the establishment of smoke-free areas of their homes, and thus to make demands on the smoking behaviour of others (see also section 6.5 below on smoking within partnerships).[68]

6.3 Social disapproval

In the majority of the studies, pregnant smokers described being subjected to social disapproval. They recognised that pregnancy was a period in which social tolerance for smoking was extremely low, and perceived a strong social expectation that they would quit. Many women gave examples of personal experiences of being reproached for smoking in pregnancy, often by strangers, but also by family who had been previously more accepting of their smoking habit.[52-53, 61, 63, 70-71, 76] Social disapproval surrounded women in all areas of their lives, through their interactions with family, friends, work colleagues and strangers.[52-53, 56, 61, 71, 76,80] Two studies discussed the pressure to quit exerted by older children, who had learned of the harm smoking can cause the baby through public health campaigns or by the mother themselves.[52-53, 68] Awareness of social disapproval also increased as women's pregnancies progressed and became more visible to others.[52-53, 56, 61, 71, 76]

> *'I was shopping last Thursday and I came out of the centre and lit up and this lady came up and said, `How dare you, you're pregnant and you're smoking!' What could I say?'* (Hotham et al 2002 - Australia[71])

> *"I didn't smoke around my family only because if I did that, you know, the wagging finger, and you shouldn't smoke, you have a baby. And it's hard enough dealing with trying to quit"* (Edwards & Sims-Jones 1998 - Canada[76])

> *'He* [partner] *doesn't really agree with smoking and a lot of his friends have really strong views on it as well. You know they say things like 'I don't want to see you with a cigarette in your hand' and things like that, which is fair enough'* (Ziebland and Fuller 2001 – UK [80])

The studies noted that women commonly found social disapproval intrusive and responded to it in a variety of ways. For some, it provided an incentive to attempt to quit smoking.[56, 70-71] Other women described how pervasive social disapproval resulted in them smoking more, either in response to the stress of constant social censure or as an act of rebellion against authority.[52-53, 71-72]

In order to avoid further judgement, women described how they hid the fact, and the amount, that they smoked. As the NICE guidance on smoking in cessation in pregnancy notes, 'some pregnant women find it difficult to say that they smoke'.[20] It is a concealment of smoking consistent with the under-reporting of smoking in pregnancy, particularly in clinical settings (see section 1.1).[15]

In the studies in our synthesis, women talked about concealing their pregnancy in order to continue smoking without chastisement for as long as possible.[52-53, 68, 70, 76] Once their pregnant status was known, they spoke of hiding their smoking status from partners, friends, family, neighbours and work colleagues. Women described how they lied to their friends about the amount they were smoking, playing down the quantity and frequency of their cigarette.[52-53, 68, 70, 76] As their pregnancy progressed and became more visible, women spoke of policing the places where they smoked, avoiding places where they could be seen and choosing locations where they (or the smell of their cigarettes) would not be discovered.[52-53, 61, 63, 70, 76] Women also talked of collusion with other pregnant smokers in order to keep their 'secret' safe:

> '*Yes, it feels terrible when you are a smoker and you're pregnant. You don't smoke in public. You just don't dare. You hide… It's shameful to be a smoker when you're pregnant. We smokers help each other sneak away to smoke so that no one will see us'* (Abrahamsson et al 2005 - Sweden[70])

While such covert smoking avoided direct condemnation by others, women were often deeply self-critical and perceived criticism from others when there may have been none. For example, Nichter

(2007)[68] describes a woman who smoked in a hidden part of her yard to avoid the purported judgement of her neighbours whom she had never met, and her anticipation of negative comments or harsh looks which never arose when at buying cigarettes from the local shop. Women commonly considered that a generic 'everybody' was disapproving of their smoking in pregnancy.[52-53] Pregnant women who smoked spoke of feeling stigmatized, 'shameful' and 'looked down upon', describing their status as pregnant smokers in moralistic terms such as 'bad' and 'wrong'. Women did not want or welcome social disapproval of their actions.[52-53, 63, 70]

> *"I have said that I want to stop smoking, but I don't want other people to tell me that I do something wrong when I light that cigarette. I don't want that from him (partner) or anyone else"* (Kennison 2004/2009 - USA[52-53])

6.4 Knowledge and beliefs about smoking in pregnancy

The guilt of being a pregnant smoker and the sensitivity to the social disapproval of others was linked to a widespread awareness of the risks of smoking for the unborn child.[52-53, 58-62, 64, 66, 68, 70, 73-75, 77, 79]

Across the studies, women who continued to smoke expressed a concern about its effects on the health of their baby. This was true whether the woman smoked at a reduced level or continued to smoke at her pre-pregnancy level; it was true, too, for mothers who had managed to quit but had then resumed smoking again. When asked, women could identify specific health risks associated with smoking in pregnancy, most commonly low birth weight,[52-53, 58, 61, 79] although it was not always apparent that women understood the risk that low birth weight posed for their baby.[58] Women also discussed other risks to foetal and infant health.[64, 74, 79]

> *'I thought about a lot of things, you know like low birth weight, she could be little, she could have asthma, I mean she could have even died if I would have continued on smoking cause when I smoked, I smoked Newports and those were like the worst cigarettes so I had to do it for her. She's pretty tiny now, you know, and maybe that is from me smoking the first three months'*
>
> *'Small birth weight . . . lung effects . . . their lungs come out undeveloped and they have less chance of living'*
>
> *'Smoking causes low birth weight and as they get older they may be smaller or they may not grow as well and not do things that normal babies do. . . . A friend of ours has a son but he has a very, very bad speech impairment . . . his mom smoked during her pregnancy'*
>
> (Kennison 2004/2009 – USA[52-53])
>
> *'I know that like there's chance of low birth weight, cot death, all sorts. Bleeding in your pregnancy. Yeah all sorts. Asthma in the baby when it's born'* (Tod 2003 – UK[66])

The high level of awareness that smoking in pregnancy is harmful suggests that women's health knowledge and beliefs, like their experiences of guilt and social disapproval, would be a powerful motivator to quit. However, a more complex picture emerges from the studies. While mothers could identify adverse outcomes linked to smoking in pregnancy, and low birth weight in particular, the studies point to a considerable degree of confusion and doubt about the risks. In part, this appeared to be linked to the way that women interpreted what they knew about smoking in pregnancy, a pattern evident across both earlier and more contemporary studies.[52-53, 59, 61, 70, 73]

'At first I felt it was no big deal, it won't do anything. I thought it [smoking while pregnant] won't hurt the baby, the baby's in a sack. Not really being ignorant to the fact that we share the same blood. . . . You don't know whether it's going to harm the baby or not, you're juggling with it' (Kennison 2004/2009 - USA[52-53])

'In the first six months of pregnancy the cigarette smoke does not affect the baby as much as the last three months and especially the last month when the lungs are actually drying, not drying out but attempting to mature' (Kennison 2004/2009 - USA[52-53])

A more pervasive factor fuelling confusion and doubt about the risks of smoking in pregnancy was a perceived lack of consistency in the evidence to which women had access.

Firstly, there was an inconsistency between scientific evidence and the evidence of everyday life. Formal sources of information and advice were widely cited, with women describing the way smoking in pregnancy was portrayed in the media: on television and radio, and in books, posters and advertisements.[52-53, 61-62] The warnings about smoking in pregnancy on cigarette packs were noted by the women in Kennison's study, although they tended to minimise the influence of these messages on their smoking habits.

While these formal sources underlined the risks to the baby, personal experience could contradict this. A recurrent finding was that women gave greater weight to knowledge derived from personal experience; either their own experience or that of trusted others.[59, 61] The way in which personal experience shaped the interpretation of risk – in this instance, low birth weight - is illustrated in the studies below.[59, 62] In each, the mother indicates that she 'knows' that smoking in pregnancy 'doesn't help birth weight' and 'causes smaller babies' and 'is supposed to make them underweight', but this generalised knowledge is contradicted by the evidence from their everyday lives:

'No, if it did [cause low birth weight] I'd stop, wouldn't I? …. I know people who have low birth weight babies and don't smoke, and people that smoke like a trooper and have 8lb babies. All our bodies are individual'

'I think this business with smoking is, you know you tend to blame it [low birth weight] on something - so, oh well, let's blame it on cigarettes'

(Oakley 1989 – UK[62])

'I don't think it makes any difference. It's supposed to make them underweight but I've always smoked nearly 40 a day and mine were all around 11 lbs - that's with the smoking' (Graham 1976 – UK[59])

The weight placed on first-hand knowledge is reflected in the sources of information that women valued most highly; women described how they would more readily turn to, and accept advice from, friends and relatives than non-personal sources such as hospital clinic staff.

Secondly, there was a perceived inconsistency in the advice women received from formal sources and health professionals in particular. Many of the papers included information on women's experiences of care during pregnancy.[52-53, 57-62, 64-66, 68, 70-71, 73, 75-79] Women appeared not to differentiate between the different types of maternity care provider, referring to 'health professionals' as a generic category with no distinction drawn between doctors, midwives or other professionals.

A recurrent finding was the perception that smoking cessation was not a major priority for health professionals. Women talked about how they anticipated, but did not find, a focus on their smoking status and a pressure to quit. Thus, smokers spoke of professionals undertaking limited assessments of smoking status, with no one asking about smoking or, after establishing that they smoked at their first ante-natal appointment, not referring to it again.[71, 73] Women described their disappointment at what they felt was a superficial approach to encouraging quitting.[64, 77] A common perception was of a lack of pressure to quit, with reduction rather than cessation being promoted and few concrete strategies suggested to support quitting.[57, 61, 66, 68, 71, 73, 78]

6.5 Smoking within partnerships

Twelve of the papers contained detailed descriptions of women's views on smoking within their partnerships. It was clear that most, if not all, of these were heterosexual partnerships.

The studies underline the influence that partners have on women's smoking behaviour in pregnancy and on their motivation and ability to quit. In part, this influence is direct, through the partner's smoking behaviour. In part it is indirect, through the wider dynamics of the couple's relationship.

Firstly, as quantitative studies have documented, smokers typically live with smokers. In our analysis of women and their partners in Millennium Cohort Study, we found that 70% of the women who were smokers prior to pregnancy had partners who were also smokers (see section 1.1). Similarly in the qualitative studies in our synthesis, in the majority of partnerships where the woman smoked, it was clear that her partner smoked too. Not surprisingly, the studies describe the impact of partners' smoking status on women's experiences of smoking in pregnancy.[64-66, 68, 71, 76-77,80]

Living with a partner who smoked was seen to make it very hard to quit and remain a non-smoker in pregnancy:

> *'I can't quit just like that because my husband smokes. It's very difficult, because I have tried it before. If I could get him to quit and myself to quit, then it would be easy'* (Edwards & Sims-Jones 1998 - Canada[76])

> *'The fact that my partner smokes doesn't make it very easy at all. It's hard being around people who smoke when you are trying to stop and that's usually the downfall'* (Hotham et al 2002 - Australia[71])

However, pregnancy was regarded as providing an opportunity for partners to change their smoking behaviour, both to protect the unborn child and to support the woman in cutting down or quitting.[52-53, 56, 65] Women noted that their pregnant status made it easier to negotiate smokefree areas of the home.[68] For example, the papers record how partners tried to smoke less around their pregnant partners, by going into a different room or, more commonly, going outside to smoke, behaviours that women experienced as supportive and helping them to make changes in their smoking behaviour.[52-53, 65] However, such changes can be difficult to sustain in the longer term. For example, women described how the resolve to smoke outside often weakens and the usual habit of indoor smoking is resumed:

> *'I think for the first wee while, he'd be great, he wouldn't smoke around me…but eventually after two weeks that was him back to smoking around me again, so…I can't, I couldn't see him stopping smoking around me, so…he would influence me to smoke again, I would say, definitely'* (Thompson et al 2004 - UK[65])

In such contexts, women spoke of resenting having to 'police' their partner's behaviour in order to keep rooms smoke-free, preferring externally-imposed restrictions that prohibited smoking in the home (for example, those imposed in contracts for rented accommodation).[56]

In one instance, the change of location of a partner's smoking was seen as unsupportive:

> *'It made me feel like it's futile to give up and also it's been quite tempting to see someone smoking..he should have, throughout my pregnancy, supported me and not been in the garden where I could see him, smoking.....I feel quite angry because it wasn't supportive of me and ultimately I think one of the reasons possibly I've gone back to it is that I'm living with someone who is carrying on smoking and just seeing him out to the garden used to make me angry'* (Zielband and Fuller 2001- UK[80])

The synthesis points to a second dimension of partners' behaviour, relating to the broader dynamics of the couple's relationship. Some relationships were described in ways that suggested that they were egalitarian, with couples able to raise issues and problems. Women talked about openly discussing their and their partner's smoking habits, reaching an agreement on the support that the partner would give in helping the woman try to quit. This was particularly evident among partners who were never-smokers or recent ex-smokers, and were keen for their pregnant partners to give up smoking for both their own health and that of the baby.[52-53] As Park et al observe in their review of partner support and smoking cessation, smokers particularly appreciate 'support involving cooperative behaviours, such as talking the smoker out of smoking the cigarette, and reinforcement, such as expressing pleasure at the smoker's efforts to quit' and these approaches increase the chances of quitting.[81] Among partners who smoked, supportive forms of behaviour could also involve the partner continuing to smoke but not in ways that undermined the woman's attempts to make positive changes in her smoking habits.[56-57, 65, 72]

In other relationships, the women described less supportive patterns of partner behaviour. They described how the onus to change was placed solely on them.[56, 65] Women experienced resistance if they tried to change their partner's smoking habits, with partners denying that their smoking behaviour made it more difficult for the woman to reduce or quit smoking.[57, 66,80]

> *'Yeah, he smoked more.....he said he found it really stressful. He turned round to me and said "Give up". I said "Yeah, I will, you as well then". He said "Oh, I don't have to give up, only you do". I said "No actually, you do as well". I asked him to go outside to have a fag but he wouldn't. He smoked all the time. Here. There, in the car. I mean it's the first think he does. He's a really heavy smoker'*

> *'He's an anti-smoker in pregnancy but a bit of a hypocrite because he smokes himself....but he didn't smoke around me. I think he thought he was doing the right thing by not smoking around me, therefore that was acceptable. But it got me, it did make me cross.'*
>
> (Ziebland and Fuller 2001 – UK [80])

In consequence, women found it difficult to initiate and sustain positive changes of their own.[66]

The papers present evidence of partner behaviour that was more openly negative. For example, women described their partners smoking in their presence and offering them cigarettes in times of stress, but at the same time admonishing them for smoking and telling them to quit.[52-53, 65] As another

example, a woman smoking together with her partner, for instance in the evening, would be condoned but she would be criticised when she smoked alone.[68] Women in two of the studies described how their partners used controlling tactics to narrow their options for smoking.[56-57, 65] The behaviours included monitoring numbers of cigarettes in a packet, hiding cigarettes, restricting access to money to buy cigarettes, taunting women by smoking themselves, withholding affection after a woman had smoked , and using coercion, threats and intimidation.[56-57, 65] In consequence, women considered that there was little room for negotiation, creating what is described as "*the condition of compelled tobacco reduction for pregnant smokers"*.[56 (p 503)] As this suggests, in unequal relationships women can find themselves coerced, rather than supported, to change their smoking behaviour - and, at the same time, feel they are unable to ask their partner to make positive changes to their own smoking habits.

6.6 Triggers for smoking in pregnancy

Becoming pregnant changed women's relationship to smoking; as the sections above have indicated, it made it a source of guilt and social disapproval and a focus for negotiation within their domestic relationships. However, becoming pregnant did not remove the factors that had long sustained their smoking habit. As noted in the discussion of the centrality of smoking (section 5.2), the studies described how smoking prior to pregnancy gave women a sense of control in challenging circumstances and provided a way of coping with stress; at the same time, they felt controlled by their dependence on cigarettes.

While becoming pregnant provided a springboard for reducing and quitting smoking, it could also exacerbate the factors that already made the habit a hard one to break. The 'normal life' that smokers sought during pregnancy was commonly not achieved.[73] Women's circumstances often became more complex, increasing the barriers to quitting and reinforcing their dependence on smoking.[54-55, 57, 68, 75] For example, women reported having to move out of their homes and in with other family members, a move made additionally difficult as they found themselves immersed in smoking environments where their attempts to quit were continually thwarted.[68] They described, too, how financial and psychosocial stress could increase their reliance on a habit that had seen them through tough times in the past and – perversely – make it harder to cut back on smoking in order to give priority to food and other basic items.[52-53, 66, 75] However, among pregnant teenagers, lack of money prompted them to ration their cigarettes in an attempt to save money for baby clothes and other needs.[58] Within this group, financial pressures emerged as an incentive to quit, mirroring the findings of Lendhalls et al.[77]

Other changes in women's lives were also identified as triggers for smoking. Pregnancy could force a withdrawal from social networks and everyday activities like paid work leading to boredom.[52-53, 59, 64, 71-72, 74-75]

> *'It's boredom that causes it [smoking] now, with being used to working long hours I find myself getting up at nine in the morning and wandering around the house thinking 'what can I do now?'* (Haslam & Draper 2001 – UK[64])

> *'I smoke when I'm bored, and its right boring now, stuck at home with nowt to do and three months left to go'* (Graham 1976 – UK[59])

Worrying about the pregnancy – including worrying about the risks to which they were exposing their unborn child – was also identified as a trigger for smoking:

'When I am worried about the pregnancy or my next doctor's appointment....I take a smoke and then I'm able to concentrate on that and calm down. And to think about something different' (Cottrell et al 2007 – USA[72])

'Well since finishing work I haven't had any, until last week when I went to the hospital and they said something about something not being quite right with the placenta, which made me want to smoke more.....' (Oakley 1989 – UK[62])

'*It's so bad for your health. At the moment I smoke because I am worried that something might happen to the baby, but it's smoking that causes that'* (Hotham et al 2002 – Australia[71])

While stress could have a specific focus, it was often described in ways that suggested it was the constant backdrop to women's experiences in pregnancy. In other words, stress had a generic quality.

'It was my last trimester and I was very stressed out. I just said screw this and I started smoking again' (Edwards & Sims-Jones 1998 – Canada[76])

'*I got steamed up about something or other, got quite hysterical and lit a cigarette. I had one that day, two the next and six the next and I was back to square one'* (Oakley 1989 – UK[62])

'Whenever I am stressed it feels like [smoking] helps, but it really doesn't. It is just sort of me' (Cottrell et al 2007 – USA[72])

6.7 Summary

It is clear that becoming pregnant fundamentally altered women's relationship to smoking. It could no longer be a part of their identity that they, and those around them, accepted and took for granted. Instead, it generated guilt and social disapproval.

It was scientific evidence on the risks of smoking for the unborn child that underlay both the guilt women felt and the social disapproval to which they were exposed. The risks were widely known, with women noting in particular the increased risk of low birth weight. But women's knowledge and beliefs about smoking in pregnancy were shaped by information drawn from multiple sources.

Women placed considerable weight on knowledge derived from personal experience, either their own experience or that of trusted others, and this source of knowledge painted a different picture of the risks of smoking to their unborn child. Included here was their perception of the health of their other children, who appeared to be unaffected by exposure to smoking in utero. It included, too, their personal experiences of maternity care, where the anti-smoking message of health professionals was described as weaker and more ambivalent than they expected.

Other factors could undermine motivation to make changes in their smoking behaviour. Becoming pregnant could disrupt their everyday lives, increasing rather than reducing the pressures that made smoking such a hard habit to break.

7. FINDINGS: QUITTING AND TRYING TO QUIT SMOKING

- wanting to protect their unborn child from harm was the primary motivation for quitting;
- most women reported that quitting in pregnancy was very hard; willpower – the sense of being strong enough to attempt life without cigarettes - was regarded as essential;
- cutting down to quit was the most commonly-described method;
- encouragement and support was seen to make quitting more likely, both from informal sources and from formal sources (cessation services, GPs, maternity staff)
- engaged and on-going support from health care professionals was highly valued;
- conversely, approaches which were regarded as simply 'going through the motions' were criticised (e.g. advising women to quit but not following this up with personal support and practical suggestions);
- remaining an ex-smoker was commonly described as a daily struggle, in part because the personal consequences of quitting were seen as largely negative (in particular, disruption to relationships with partners, family and friends);
- for many women, giving up smoking was a temporary measure, undertaken only for pregnancy and for the sake of the baby

7.1 Introduction

The women in the included studies talked openly and in detail about their attempts to quit smoking once they knew they were pregnant. These data were coded into four translations which mapped the stages of trying to quit: being motivated to quit, trying to quit, methods of quitting and the personal consequences of quitting. Twenty papers contributed to this line of argument.

7.2 Motivation to quit

The analysis identified two broad sets of motivating factors. The first and dominant factor stemmed from the guilt of being a pregnant smoker (see section 6.2) and focused on protecting the health of their unborn child; a second, but much less central, factor related to specific health problems that the mother encountered through her pregnancy.[52-53, 59-60, 68, 70, 76-77]

The dominant and universal motivation to quit was the desire to protect and promote their child's health. Women described how they prioritised the health of their unborn baby over their need to smoke, with many noting that they believed prior to pregnancy that they would be able to give up smoking once they had this motivation to quit.[52-53, 75, 77] For some, the anticipation of their changing physical shape provided an additional incentive to quit.[70]

> *'I felt I just had to quit for her, you know, and myself while I was pregnant, and it wasn't good for the baby so I quit'* (Kennison 2004/2009 - USA[52-53])

> *'I gave up when I heard [I was pregnant]. Everyone says it's bad for the baby. I knew I'd give up then...I had a reason to stop'* (Graham 1976 - UK[59])

> *'I couldn't imagine myself having a big stomach that everyone could see and smoking at the same time'* (Abrahamsson et al 2005 – Sweden[70])

As these accounts suggest, the motivation to quit was linked to the woman's investment in the moral identity of being a non-smoker.[68] She wanted to do, and be seen to do, the best for her child.

Women spoke of their baby having no choice over whether or not she smoked, making quitting a moral responsibility.[52-53] Fuelled by an awareness of the guilt they would feel if their baby's health was compromised, this sense of responsibility provided a powerful motivator to quit.[52-53, 76]

> *'It [smoking] seemed like abuse. It seemed like something which the child could not control and it seemed like it would be just as bad as me hauling off and smacking one of my kids'* (Kennison 2004/2009 - USA[52-53])

> *'It [reason for stopping smoking] was mostly guilt and fear that something would happen to my baby'* (Edwards & Sims-Jones 1998 – Canada[76])

For some, the moral commitment to quitting in order to do the best for their baby was under-pinned by their religious beliefs.[68]

> *'…the spiritual issue of it, the moral issue of it, the health issue and then of top of that being pregnant. I just could not do that [continue smoking]'*

> *'Just asking the Lord to help me...that strengthens you and I didn't think about it [smoking] and replaced it with prayer'*
>
> (Kennison 2004/2009 – USA[52-53])

The commitment to quit for the sake of the baby got strong social reinforcement. As noted in section 6.3, women felt that smoking in pregnancy exposed them to social censure within their families (partners, children, wider kin), their social networks (friends, work colleagues) and the wider community (strangers, the media). For those who attempted to quit, social disapproval was identified as an additional incentive. [52-53, 56, 71]

> *Everybody kept saying [the baby's] going to be premature, she's going to be sickly . . . and this is going to happen to her, that's going to happen to her. So I was just so sick of hearing it. I'm like, okay, I'll just stop.* (Kennison 2004/2009 – USA[52-53])

Women mentioned, too, how they quit smoking in response to their friends giving up:

> *'All of them have stopped...so that's another reason why I want to go off them. There's no fun there any more with them...it's only when you are out socially or whatever that you would think they have all quit but I haven't'* (Thompson et al 2004 – UK[65])

Gentle support from partners and families also provided an incentive to quit – and more so than the more censorious pressure from partners reported in section 6.4:

> *'Oh…he would love me to give up…he'd go on, you know, if you were smoking….but he wouldn't actually say 'You've got to stop smoking', or anything like that'* (Thompson et al 2004 – UK[65])

In one study, the analysis described how women anticipated the challenging environments into which their children would be born, which would require them to be physically fit and tough to survive.[54-55] In this study of teenage pregnancy, the women described how their children would grow up in poverty in neighbourhoods scarred by drugs, violence, gangs and crime. Knowing what the future held fuelled their desire to quit, thus giving their baby the best possible chance to do well despite these circumstances.

'I probably won't be able to give my child all the things he'll need in life, but I can make sure he will be healthy'
I know my child will already be poor and have a rough life. He'll need to be strong. So I'm trying to quit for him'

(Lawson 1993/1994 – USA[54-55])

Protecting their child from the risks associated with smoking in pregnancy was the major motivation for quitting. However, the health experiences of the mother could provide a second and additional incentive. For example, morning sickness was described as supporting the woman in her attempts to quit by reducing the desire to smoke. For this reason, some women viewed morning sickness as 'on the side' of their unborn child.[52-53] Morning sickness meant that women became averse to the taste, smell and even sight of cigarettes; women spoke of cutting down and quitting, often with little or no effort.[52-53, 68, 70, 76] For some women, changes to their sense of taste and smell lasted throughout their pregnancy.[69]

'I told some of the women at my office, "Look I don't want to be like a reformed bitch of smoking, but the smoke is just making me sick." They were pretty understanding about it, and they stepped away from the door so I didn't have to smell it' (Nichter et al 2007 – USA[68])

Other health problems also provided an incentive to quit. Conditions such as asthma or a family history of heart disease were cited as reasons for stopping, reinforcing their primary motivation to quit in order to protect the health of their baby.[76]

7.3 Trying to quit

As the section above has indicated, becoming pregnant was identified as a strong motivator to quit smoking. The desire to quit was informed by knowledge of the health risks to which smoking exposed the unborn child (see section 6.4), a knowledge associated with guilt at being a pregnant smoker (section 6.2) and the sense that society disapproved of one's behaviour (section 6.3).

The evidence suggests that some women found it easier to quit than they had anticipated.[70, 76] For example, their motivation to quit for the sake of their baby enabled them to battle through withdrawal symptoms which in other circumstances might have ended their quit attempt.[77] But the majority reported that quitting smoking in pregnancy was very tough. The motivation to quit to protect the health of their child had to be matched by determination.[52-53] Willpower was seen as the essential ingredient of success.[64, 66, 71, 78] A sense of being strong enough to attempt life without cigarettes was required, with women needing to learn how to cope with their dependence on cigarettes in difficult circumstances and in environments where smoking was the norm.[52-53, 68-70]

'It's always been something I have, and it's gonna be hard. You know cause my family smokes, my friends smoke....everyone's smoking...It's gonna be a challenge' (Nichter et al 2007 – USA[68])

'You have to really want to stop smoking. Can't nobody make you stop doing nothing that you ain't ready to stop doing. You have to be ready yourself. I mean you got to be really determined' (Pletsch & Kratz 2004 – USA[69])

'It was horrible, it was worse than horrible. It was terrible. The first week was horrendous...I am pretty stubborn and hard headed and I thought, "Naah, I'm not going to need any help." And that's when I started cutting back and discovering it was going to be harder than what I had anticipated' (Kennison 2004/2009 - USA[52-53])

Holding onto the reason why one was quitting provided a way of keeping one's resolve. Imagining the baby in the womb was identified in the studies as helping women in their struggle to stop smoking during pregnancy. Ultrasound and hearing the heartbeat also helped, as did feeling their baby moving.

> *'When I was pregnant with him, something I would do for myself sometimes would be like, okay every time you take a puff of that cigarette you just think that your baby is smoking it. . . . If this baby were here right now, would you blow smoke in this baby's face? Why of course you wouldn't do that! That's what you're doing every time you smoke, you're doing that'* (Kennison 2004/2009 - USA[52-53])

> *'. . .when I heard the baby's heart beat it was very emotional and I started crying. It makes it easier to cut down and then stop. The ultrasound examination gave me motivation to stay smoke-free and if I got abstinent I looked at the photo they gave me'* (Lendahls et al 2002 - Sweden[77])

> *'Oh, and the baby will kick when I'm smoking, it almost makes me like cry because it's just like, I shouldn't'* (Nichter et al 2007 – USA[68])

While essential, women acknowledged that it was hard to quit through willpower and determination alone. Encouragement and support, from both informal and formal sources, emerged as critical factors in trying to quit. Those who were successful noted the importance of support from family and friends;[65, 68] when it was inconsistent or absent, the process of trying to quit became much harder or failed.[61, 68, 73]

> *'Families won't support you (to quit) because they too busy smoking themselves. They encourage your smoking even more'* (Wood et al 2008 – Australia[75])

> *'Well I do find it quite hard because my boyfriend's a smoker and we're living with his father as well, and he's a smoker so I'm in a smoking environment all the time which doesn't really help me'* (Haslam & Draper 2001 – UK[64])

Formal sources of support were also seen as important. Thus external agencies such as quit advice lines and cessation support groups were reported by women as being helpful in their struggle to quit.[64, 68]

> *'It was very useful because. . . I was getting these calls on a regular basis. . . not that they knew who I was. . . . but just that somebody else was interested. Someone who doesn't really know who you are cared about you, following through with something you wanted to do. It was almost like a nagging mom, but in a good way'* (Nichter et al 2007 – USA[68])

Healthcare providers were also identified as important in the quitting process (7 of the 19 studies that discussed health care management were based in the UK). The findings point to the importance of an engaged, supportive and systematic approach. For some women, health professionals who were friendly and non-judgemental, monitoring smoking status at each visit and offering a range of supports for quitting were seen as playing a key role in helping them to quit.

> *'When I was pregnant with my daughter, he was on me every day. He's been my doctor for a long time and he was on me every day. "Stop, now you're stopped, don't start back." He always encouraged me, "Don't start back, don't start back"'* (Kennison 2004/2009 - USA[52-53])

'My GP…with my last pregnancy I got down to five a day and I couldn't get rid of them. He . . . said, `Well, you're going to have to give them up, how are we going to do this?' And I said, `I'm not sure.' He talked to me and suggested things…' (Hotham et al 2002 - Australia[71])

As this suggests, a personalised and engaged approach was highly valued and facilitated uptake of cessation advice and support.[60, 79] Conversely, women described how, if they feared a negative and censorious reaction from their health care providers, they could not be honest that they were smokers. Instead, they would conceal the fact that they smoked or admit it but exaggerate how well their attempts at quitting were going (see also section 6.3). Concealment was done to avoid being 'lectured' about cessation, to maintain the professional relationship and, in some cases, to avoid care being withdrawn.[52-53, 62] At times, the concealment rebounded if women later wanted to receive cessation advice, but were thought to have already quit.

'This is crazy, I've lied to the doctors and I'm too embarrassed to go back and tell them. I'm worried about I might be hurting [the baby] because I'm too scared to tell them, too chicken to tell him I'm smoking. I don't want to look like an idiot!' (Kennison 2004/2009 – USA[52-53])

Personalised and supportive approaches to quitting were also valued more highly than approaches which were regarded as 'going through the motions'. For example, women described how health professionals would encourage them to quit but would then not follow this through with either personal support or concrete suggestions on how this could be achieved.[60-61, 66, 68] Women recalled being given pamphlets or numbers for a quit line; however, these were seen as an inadequate and unhelpful way to follow up emphatic advice to quit smoking.[60, 64, 68]

'My doctor just tells me that it's really important for me to quit. Well, I know that already, and I want to quit too. If it were so easy, I would have done it already. So when he says that to me, I just say, "Okay," and that's the end of the conversation' (Nichter et al 2007 – USA[68])

'She [the midwife] actually said it was my decision and she said 'I don't want to preach to you, but here's the leaflets and you can read them at your leisure' …It might have been better if she's been a bit more forceful with me' (Haslam & Draper 2001 – UK[64])

'I would have managed if the doctor was a little bit more concerned about it (smoking), if he had raised the subject every time' (Haugland et al 1996 – Norway[73])

It was also noted that some health professionals appeared to be encouraging cutting down and implying that there was a 'safe' level of smoking.[57, 73, 78]

'*The doctor thought it was better to smoke fewer cigarettes, and then gradually cut down, than just suddenly. I have the impression that doctors' opinions on this differ*' (Haugland et al 1996 – Norway[73])

'One participant relayed the story that her midwife had recommended that she "gradually slow down" rather than quit smoking completely "because (she) was going through a lot of stress and depression and stuff"' (Pletsch et al 2003 – USA[78])

Managing to quit was rightly seen as a huge achievement, and one that brought relief from the social disapproval heaped on pregnant smoker.[61]

'When I smoked I felt strong in a way, but now that I have quit, I have matured in another way. I have become stronger because I managed to quit smoking...I tell myself that I will not fail and hope for my own sake that I will succeed' (Abrahamsson et al 2005 – Sweden[70])

However, successfully quitting was not the end of the battle with a woman's dependence on cigarettes. Women described their daily struggle to remain an ex-smoker. Those who had quit, like women who were still in the process of quitting, talked of the constant struggle not to smoke. For many, staying quit was something they worked to achieve day by day, hour by hour. Smoking cessation did not end women's relationship with cigarettes.[52-53, 76]

'Day by day smoking cessation is something you are aiming for, but later, after just this one last cigarette' (Abrahamsson et al 2005 – Sweden[70])

'Staying quit is like AA [Alcoholics Anonymous]. You do it one day at a time. You don't commit yourself for 10 or 20 years, you do it for today' (Edwards & Sims-Jones 1998 – Canada[76])

'The whole time I was pregnant I wanted a cigarette, so it wasn't like I put it out of my mind and that was it. It was a fight' (Kennison 2004/2009 - USA[52-53])

Synthesising evidence across the studies uncovered a key insight into smoking cessation in pregnancy. It made clear that, for many women, giving up smoking was a temporary measure, undertaken only for pregnancy and for the baby. Quitting was a break from a smoking habit that pre-dated pregnancy and would be resumed after the birth.[52-53, 60, 66, 70-71, 76] Giving up was something 'you just did' for pregnancy; resuming smoking after birth was therefore seen as unproblematic.[60, 66, 70] For some, temporary cessation was limited to the stage of pregnancy where smoking was perceived to be most harmful to the foetus.[52-53]

'When I get pregnant, I'm gonna stop, and them I'm gonna start again after, afterwards, you know' (Kennison 2004/2009 - USA[52-53])

'Had I not fallen pregnant, it wouldn't have entered my head to stop smoking… I can't say I don't enjoy it because I do' (Tod 2003 – UK[66])

'*Definitely, I knew I would [start smoking again]. I thought to myself, one of these days after I am done breastfeeding, I will go out with [my husband] somewhere, and I will start drinking and I know that I will probably pick up a cigarette*' (Edwards & Sims-Jones 1998 – Canada[76])

[If I hadn't become pregnant] I think that I'd still continue to be, you know, drink on the weekends and probably still smoking a pack of cigarettes a day. (Kennison 2004/2009 - USA[52-53])

7.4 Methods of quitting

As England's *Tobacco Control Plan* notes, the recommended approach to quitting is abrupt quitting for all quit attempts and all smokers.[23] Abrupt quitting is seen as particularly important for pregnant smokers. Cutting down is not recommended;[20] instead, the emphasis is on stopping smoking as early as possible in pregnancy to promote foetal health and development.[1]

However, as the *Tobacco Control Plan* recognises, cutting down to quit is a widely-used approach among smokers who quit without professional help (see chapter 1.2). In the studies in our synthesis

too, cutting down to quit was the most commonly-described method among the smokers who made a quit attempt. Rather than quitting abruptly (often referred to as 'cold turkey'), women opted for cutting back on their cigarette consumption as the first step to quitting.[52-53, 68, 76-77]

> *'I figured ideally I wanted to quit, but I went in with the attitude that I am going to cut down because I thought that was a little bit more realistic than just trying to quit cold turkey. So I just started to cut down and I lost my taste for it. I ended up quitting completely a lot faster and a lot more easily than I had expected'* (Edwards & Sims-Jones 1998 – Canada[76])

> *'I cut back when I first found out I was pregnant. I was like four weeks....and I just slow quit, just kinda like got to where I was smoking, like half of what I was smoking before. I went from a full pack to half a pack and maybe from half a pack and just slowly....I said I just gotta stop and I was like in my second month of pregnancy. So I just stopped....And believe me I wanted it [a cigarette]...It's just this pregnancy, it's like I didn't want to stop. I just wanted to keep smoking'* (Kennison 2004/2009 - USA[52-53])

Women described a range of different approaches to cutting down. Firstly, as indicated in the quotes above, women would gradually reduce the number of cigarettes they smoked per day until cessation was achieved. As part of this strategy, women described how they would restrict the number of cigarettes to which they had access, for example by not buying packets of cigarettes. Instead, they would rely on 'getting hold' of individual cigarettes 'here and there', knowing that if they bought a packet of cigarettes they would smoke them.[52-53]

Two other approaches were identified. Women described how they reduced the strength of the brand of cigarettes they smoked, more than once if necessary; in addition, they attached meaning to cigarettes smoked at particular times and circumstances, and gave them up one by one.[68, 77] These different approaches could be combined; for example, Nichter et al describe the journey to quitting taken one woman in their study in the following way:[68]

> *'Despite being a low-level smoker, she felt strongly that quitting cold turkey was not possible for her. First, she changed her brand of cigarettes from Marlboro Reds to Lights and finally to Ultra Lights. Then, during a process of 4 months, she gradually reduced her level of smoking until she was able to quit completely. Notably, despite smoking at a low level, Veronica attached particular salience to each of the cigarettes that she smoked and thought of her dependency on a cigarette-by-cigarette basis. For Veronica, not all cigarettes were equal, and each one of the five she smoked enabled her to cope with particular types of situations. Instead of thinking of quitting all cigarettes at once, Veronica began by giving up particular cigarettes; each quit being a major challenge and victory'*

The role of nicotine replacement therapy (NRT) was discussed in detail in one Australian study (Hotham 2002[71]) and mentioned briefly in one other (Lendahls et al 2002 - Sweden[77]). Overall NRT was viewed sceptically by pregnant women, with uncertainty about its safe use in pregnancy and its ability to help people overcome the habitual aspects of smoking. This view is in line with current evidence, with a recent systematic review concluding that there is currently insufficient evidence to assess whether or not NRT is safe and effective when used in pregnancy.[82]

7.5 Personal consequences of quitting

Earlier chapters have made clear that many women want to quit smoking in pregnancy for the sake of their baby (see sections 6.2, 7.2 and 7.3). Other reasons – for example, the health of the woman herself - were of minimal importance and only mentioned by some of those who tried to quit. As

this suggests, the benefits of quitting were seen almost exclusively in terms of the benefits for the unborn child.

In contrast, the impacts of becoming an ex-smoker on the mother-to-be were seen in more negative terms. Quitting was typically experienced as disrupting social relationships with partners, family and friends in which smoking assumed a central role.

For example, the studies described how smoking was part of what a couple did together. Women talked about how becoming an ex-smoker meant they spent less time with their partner, and lost the intimacy that went with it.[56, 72] Without their shared smoking habit, couples' patterns of interaction could change radically, requiring them to find other activities to replace the time they spent together smoking. Where the partner continued to smoke and did so elsewhere, women found themselves separated physically and socially from him.[56, 72]

> *'...because he is smoking most of the time. And I guess we spent more time together when we both smoked....when we both smoked we shared it, either I would light one and he would smoke half, or he would light one smoke half and give it to me. Just through out the day we would smoke, just like that'* (Cottrell et al 2007 – USA[72])

> *'Since I don't smoke it's completely changed...when we're hanging out together he will stop the movie so he can go out and have a cigarette…I have to stop everything so he can have a cigarette'* (Bottorff et al 2006 – Canada[56])

Friendships were also affected, with women describing how difficult it was to maintain cessation when surrounded by friends who smoked; as a result friendships were curtailed:

> *'Basically I would smoke if I was out with my friends...uh some of the friends I used to go smoke with you know I don't really go talk to them as much, the people that I used to go outside and smoke with. So I miss that part....'* (Cottrell et al 2007 – USA[72])

While its impact on the woman's primary social relationships was the most commonly cited consequence of quitting, weight gain was also an area of concern.[54-55, 58, 74] Eating was frequently seen as a replacement for cigarettes, and described as a pleasurable oral substitute for smoking cigarettes.[52-53]

> *'I started to eat a lot because you know; what with being pregnant it didn't matter'*
> *'I just ate so much that I didn't need to smoke'* (Kennison 2004/2009 - USA[52-53])

As these accounts suggest, quitting can be experienced as the loss of a former self, leaving an emotional void that needs to be filled. This included the loss of the sense of wellbeing that women gained from smoking and which they struggled to replace.[52-53, 70]

> *'I spent the whole time [pregnancy], oooh, I'm missing something, something is missing, something is missing'* (Kennison 2004/2009 - USA[52-53])

7.6 Summary

Our review suggests that, prior to pregnancy, many women believed that they would be able to quit smoking when they became pregnant. Their desire to do the best for their baby would ensure success.

However, once they were pregnant, the majority found that the motivation to quit was not enough; quitting was hard work. Visualising the baby –including through ultrasound - was mentioned as a way of strengthening resolve. Encouragement from partners, family and friends was identified as important, as was support from smoking cessation services and other health care providers. Non-judgemental and individually-tailored support was highly valued.

Cutting down was the main method of quitting, with women describing how they reduced their dependence on a cigarette-by-cigarette basis. Like quitting, preventing relapse was often seen as a daily struggle, and one which disrupted valued relationships and routines, particularly with partners. Thus women spoke of the health benefits of quitting for the baby – and its social costs for them. For many women, quitting was possible because it was undertaken for pregnancy only. The woman's long-term relationship with cigarettes was therefore seen as being temporarily suspended for the sake of her unborn child, rather than ended for good.

8. FINDINGS: CONTINUING TO SMOKE

For women who continued to smoke in pregnancy:

- the contextual factors that women saw as underlying their smoking habits pre-pregnancy – persisting disadvantage, domestic relationships, stress, tobacco dependence – were again the reasons women gave for continuing to smoke in pregnancy;
- given their circumstances, cutting down was seen as possible and sustainable in ways that quitting was not;
- cutting down was often described as a positive change in its own right, and better for their unborn child than continuing to smoke at their pre-pregnancy levels;
- some women who continued to smoke acknowledged how harmful it was to their baby; however, others expressed the view that smoking - particularly at the levels they smoked - was not hazardous enough to warrant quitting;
- personal experiences were seen to lend support to this view: they and their friends had smoked and had had healthy babies;
- in consequence, the risks of smoking in pregnancy were seen as exaggerated;
- concerns about putting on too much weight was a less prominent reason given for continued smoking; in addition, women in living in environments where illegal drug use was commonplace regarded cigarette smoking as a less hazardous addiction.

8.1 Introduction

This final line of argument brings together insights from the studies on why, despite the guilt and social disapproval commonly experienced by pregnant smokers, many women did not quit in pregnancy. Instead, they continued to smoke, either reducing or maintaining their pre-pregnancy levels of consumption. Synthesising evidence across the studies suggests that *cutting down* was often represented as an appropriate and sustainable response to being a pregnant smoker which, like quitting, represented a positive change in behaviour. The section considers, too, the complex emotions experienced by women who *continued to smoke*, and how they explained this to themselves and others (*rationalising continued smoking*).

8.2 Cutting down

The women who chose to cut down were worried about the harm they could cause to their unborn child by smoking.[61, 66, 68] In assessing the potential for harm, their point of comparison was their smoking behaviour prior to pregnancy; against this yardstick, they were confident that smoking less was better than continuing to smoke at their pre-pregnancy levels.[61, 68, 74-76] While giving up completely was sometimes recognised to be better, cutting down was seen as an important and positive change in its own right.

> '*The less smoke you inhale the better. I mean if you're smoking a pack a day compared to like four a day, I'm sure that's better. I mean none is the best, but I'm sure less is better*' (Dunn et al 1998 – USA[74])

> '*I cut down as much as possible; I knew I couldn't stop and this was the better of two evils.*' (Maclaine & Clark 1991 - UK[61])

> *'I thought that if I smoked two cigarettes, it wouldn't be so dangerous. A couple of cigarettes wouldn't really matter. That's how I reasoned every day and I never quit completely…'* (Abrahamsson et al 2005 – Sweden[70])

Linked to the perception that cutting down was a positive alternative to quitting, some women described 'safe' levels of smoking during pregnancy. They considered that they were taking active steps to minimise the risk to their baby if they continued to smoke, but at a reduced level.[59, 74]

> *'I do smoke, but not that many, maybe two a day and four on a weekend, something like that. I don't think that's enough to bother about, do you?'* (Graham 1976 – UK[59])

> *'If you don't quit – if you smoke only this certain amount [under 10 cigarettes a day], it's not that bad for the baby...if you start smoking over that amount a day then it's bad for the baby'* (Nichter et al 2007 – USA[68])

A range of contextual factors were cited in support of cutting down as a method of harm reduction. The importance of making changes in health behaviour that could be initiated and sustained within the constraints of their everyday lives was particularly noted. Thus, women spoke of cutting down as a positive change that, unlike quitting, could be accommodated within their relationship with their partner. When both the woman and her partner were smokers, the couple could work together to ensure that the woman cut down.[56] Where both were trying to cut down, her pregnant status meant that the woman was often expected to reduce her consumption more. As an additional contextual influence on their decision to cut down rather than quit, women spoke of the need to balance the needs of their unborn baby with those of their other children and to maintain stability in their lives. They spoke, too, of lives that had few other sources of respite and relief (see also sections 5.2 and 5.3).

> *'They say it can be born dead if you smoke, through coming on early. I've cut down, and I'm down to 10 a day. If I cut down any more, I take it out on him [her son] which isn't fair on him. So it's one bairn or the other'* (Graham 1976 – UK[59])

> *'I'm cutting them down, but I smoke because everything I ever wanted has been ruined, I haven't got anything else left now'* (Oakley 1989 – UK[62])

Women described their perception that health professionals condoned their decision to cut down rather than quit. They recalled being told by health professionals that minimal levels of smoking were safe in pregnancy (see also section 7.3).[68, 71]

> *'She was told by her doctor that the baby would be ok as long as she only smoked five a day. And I have heard it from a few mothers. Whether it's been from their doctors or whether they were told at the hospital'*

> *'It depends on whether your doctor or midwife smokes....a midwife who smokes said "In all my years, I've never seen a baby be smaller because of a mother who smokes"…that undoes everything you are told'*
>
> (Hotham et al 2002 – Australia[71])

The studies also included accounts where women reported being advised to smoke at reduced levels rather than to quit because withdrawal symptoms associated with quitting may be dangerous to the baby, because quitting can cause stress leading to miscarriage and, more broadly, because the stress of quitting can be more harmful to the foetus than smoking.[57, 68, 73, 75, 78] For some, this professional endorsement of cutting down undermined both the need and the motivation to quit.[61]

In addition, studies indicated that some women reduced their cigarette consumption in order to comply with perceived social expectations and to be 'good mothers'. For this group, cutting down did not appear to assuage the guilt they felt about exposing their unborn child to potential harm; reduction was not necessarily viewed as a success and women focused on their failure to quit smoking completely.[56, 61, 68]

8.3 Continued smoking

The reasons that women gave to explain why they continued to smoke in pregnancy were closely related to the contextual factors they identified as explaining why they were smokers in the first place: life circumstances, persisting disadvantage, stress and addiction (see sections 5.2 and 5.3). The essential functions that smoking fulfilled in their lives were seen to outweigh the benefits of giving up.[61] Women who continued to smoke spoke of being aware that they were violating a social taboo by being pregnant and smoking and, as previously described, sought to hide their smoking to avoid social disapproval.[52-53, 63, 70]

Women who continued to smoke appeared to fall into two broad groups. Firstly, some women continued to smoke despite acknowledging that it was harmful to their baby and to their own health.[59, 62, 71, 74]

> *'I would come home and I could smoke a pack a day, and I did this sporadically, knowing it was very bad [for the baby], knowing everything [about the ill-effects of smoking on the baby] but I knew it was my only link to sanity'* (Edwards & Sims-Jones 1998 – Canada[76])

> *'My asthma has been worse since I've been pregnant....in the morning I've used my ventolin just so I can smoke'* (Hotham et al 2002 – Australia[71])

For women in this group, continued smoking was associated with feelings of guilt and lack of self-worth; they considered they should have had the motivation to quit once they were pregnant but found they could not.[52-53, 70, 77]

> *'I was doing it because I wanted to and I felt like I needed it, but at the same time I felt so bad every single day, but I'd go right on back and keep doing it'* (Kennison 2004/2009 - USA[52-53])

> *'I've always said that if I were pregnant I would never smoke during my pregnancy and I would quit immediately. I always said that that is what I would do and yet I still smoke. I'm carrying a living human being and I know how dangerous it is'* (Abrahamsson et al 2005 – Sweden[70])

Secondly, there were women who expressed the view that smoking was not dangerous enough to warrant quitting.[74] Mothers who had smoked through a previous pregnancy spoke of how having a healthy baby reduced their motivation to quit in subsequent pregnancies. As has been noted in other sub-sections, scientific evidence that smoking in pregnancy was harmful to the unborn child was discounted by women whose children appeared to be unaffected.[63, 66, 77] Women were often sceptical of evidence that highlighted the risk of adverse outcomes like cot death that, because they were rare, neither they nor anyone in their social network had experienced. Evidence could also be discounted where effects were long-term and hard to detect.

> *'I mean I know they say your baby could get cot death or something but then I smoked through my four year old [daughter's pregnancy], and she got none of these so…'* (Bull et al 2007 -UK[63])

'*It's really hard when you smoke a cigarette and nothing happens, you know. I mean it would be something if you smoked it and fell over, but you don't. Years down the line you do, but you can light one now and nothing will happen to you. And it doesn't seem like nothing happens to the baby either*' (Dunn et al 1998 –US[74])

As the next section indicates, the weight given to personal experience is evident, too, in the ways women rationalised their continued smoking.

8.4 Rationalising continued smoking

A number of justifications were provided by women to explain why they continued to smoke in pregnancy. Women appeared to build a 'protective wall' of reasons to make smoking seem acceptable to themselves, their immediate family and wider society.

A recurrent theme related – again – to personal experiences that appeared to contradict the scientific evidence. Thus women spoke of smoking in pregnancy and giving birth to a healthy baby, and having family members and friends who had smoked without apparent adverse effects on the health of their child.[54-55, 63-64, 68, 74-75, 79]

'*I don't know of anyone who has had any defects with a baby through smoking, but I have known people who smoked and have perfectly healthy babies*' (Bull et al 2007 – UK[63])

'I've never met anyone who has had a problem. My friends have big healthy babies and smoked, so....why should I put my cigarettes away?' (Hotham et al 2002 – Australia[71])

'My sister who had twins smoked two packets of cigarettes a day during pregnancy. Her twins weighed five pounds each and they are healthy'

'Five of my friends smoked a pack every day. Their babies are healthy'

(Lawson 1993/1994 – USA[54-55])

Women recounted the experience of having quit in pregnancy and having a child who subsequently developed asthma, and having smoked in other pregnancies and had children with no illnesses.[68] Against this backdrop of personal experience, women concluded that smoking in pregnancy was not bad for all babies. Evidence derived from experience prompted women to distrust the scientific evidence relayed through hearsay, the media and by health care professionals.[63, 66, 70] Distrust of science, in turn, appeared to increase the weight they placed on personal experience. In consequence, women concluded that the risks of smoking in pregnancy are exaggerated by health care professionals and that smoking in pregnancy was an individual's choice.[63, 77]

'My mum smoked through all her pregnancies and I knew various other people who smoked through theirs. But I look at their kids and I look at me thinking there is nothing wrong with me or them! So I feel like there you go, let's just carry on as the doctors just exaggerate the risks anyhow'

'I don't really agree with them telling you it is bad [smoking in pregnancy]...I don't agree actually that it does any harm because I see healthy babies from those women [smokers]. They just have to tell you it is bad, it is part of their job'

(Bull et al 2007 – UK[63])

While distrust and dismissal of scientific evidence were dominant factors justifying continued smoking, other factors were also cited. These include concerns over weight gain in pregnancy and the perception that a smaller baby would mean an easier labour.

With respect to weight gain, continued smoking was seen as a way of controlling weight gain and thus avoiding the consequent need to diet post-partum.[54-55, 61, 71, 77]

> *'It [smoking] stops me from eating. If I don't have a cigarette, I'll have something to eat and I don't want that to happen'* (Hotham et al 2002 – Australia[71])

> '*When I smoke I don't eat cake and candy bars. Just think how much weight I would have gained if I did not smoke'* (Lawson 1993/1994 – USA[54-55])

Amongst the adolescent girls included in Lawson's study (1993/1994), peer harassment about body size and a desire to remain attractive to boys were also mentioned as rationale for controlling weight through smoking.[54-55]

> *'I don't want to quit smoking 'cause I don't want to gain a lot of weight while I'm having this baby. I want to look good so I'll get another dude. The boys I hang with hate fat girls'* (Lawson 1993/1994 – USA[54-55])

With respect to smoking and an easier labour, the studies noted a perception among some women that, by continuing to smoke, their baby would be smaller and birth would therefore be less painful.[54-55, 71] Those who expressed this view appeared not to appreciate the risks of low birth weight for a child.

> *'I don't want a big baby 'cause my labour will be too hard. Just think if I quit smoking how much bigger I'll be'*

> *'I want a baby that weighs five pounds of less, so I smoke. With a smaller baby I'll have a shorter and less painful delivery'*
>
> (Lawson 1993/1994 – USA[54-55])

> '*My sister-in-law has just had a baby boy last October and she smoked, boy did she smoke!....She had already had one boy at 9lb, near enough, and she didn't want a big baby, she wanted a small baby, that was the reason she was smoking'* (Oakley 1989 – UK[62])

Finally, women living in environments where substance misuse was the norm, justified their smoking by making comparisons between their behaviour and other more 'risky' behaviours.[58, 68, 73-74] Smoking was described as the 'lesser of evils' when compared with alcohol and drugs, which were seen as much more harmful to the unborn child. Women had heard of the harmful effects of alcohol (foetal alcohol syndrome) and "crack babies" but were less clear about the impact of cigarette smoking in pregnancy.

> [68]*'I think this is not the worst thing I could do (smoking). If I was on drugs....pills and ...narcotics and alcohol. I would have thought it was worse if I was a drug addict'* (Haugland et al 1996 - Norway[73])

> *'I have friends who use drugs and smoke pot, but I just smoke cigarettes. It's better to smoke cigarettes than to be using drugs'*

'I'm proud to be a smoker, than a pregnant woman using drugs'

(Lawson 1993/1994 - USA[54-55])

8.5 Summary

Women who continued to smoke in pregnancy were aware that their behaviour was widely regarded as harmful to their unborn child. A small group continued to smoke at a level that they felt represented a risk to their baby, and spoke of their sense of guilt and low self-worth. Other women reduced the amount they smoked, a change in their behaviour that they felt was condoned by health care professionals, or took the view that they smoked too few cigarettes for their behaviour to have an adverse effect on their baby. Across these groups, women who continued to smoke in pregnancy appeared to implicitly recognise the dose-response relationship between cigarette consumption and the risk to foetal health observed in scientific studies.[1, 83]

Underlying the different patterns of behaviour were the contextual factors identified as important in earlier chapters. These contextual factors related to two particular dimensions of their everyday lives: the constraining effects of women's circumstances on their smoking behaviour and their experience that mothers who smoke have children who are healthy. Thus, women described how they only made changes to their smoking behaviour that they felt were possible and sustainable given their circumstances – and only made changes that they felt were necessary given that their friends 'have had big healthy babies and smoked'. Concerns about weight gain and the perceived advantages of an easy labour with a smaller baby were also cited by some women as reasons for continued smoking.

9. OVERVIEW OF SYSTEMATIC REVIEWS OF INTERVENTIONS RELATING TO SMOKING CESSATION IN PREGNANCY

Contextual factors considered or reported in recent systematic reviews evaluating interventions to reduce smoking in pregnancy were:

- social patterning of smoking
- experiences and everyday lives of smokers (non-specific)
- differential effects of interventions

9.1 Aim

The aim of the overview was to assess whether contextual factors influencing smoking behaviour in pregnancy are considered in systematic reviews of interventions to reduce smoking in pregnancy. Consideration of contextual factors could include, for example, any recognition of the social patterning of smoking, any discussion of the everyday lives and experiences of smokers and any investigation of possible social differentials in the effects of interventions.

9.2 Searching for studies

The Cochrane Library and the DARE database were searched between 2005 and 2011 for recent systematic reviews focused on smoking cessation in relation to pregnancy. In addition the NICE website was scanned for reviews underpinning the recent NICE Guidance on Quitting Smoking in Pregnancy and Following Childbirth.[85] The search strategy is described in Appendix 8.

9.3 Inclusion criteria

We included systematic reviews published from 2005 onwards that evaluated the effects of interventions aimed at stopping or reducing smoking, or preventing relapse, in pregnant women.

9.4 Data extraction and quality assessment

For each review we extracted information presented by the authors in the main body of their review (i.e. in background, objectives, results, discussion, conclusions sections). One reviewer extracted the data relating to each review, and these were checked by a second reviewer.

We recorded the aims of the review and any information relating to contextual factors associated with smoking, for example, the social patterning of smoking (in general and/or among pregnant women) and the experiences and everyday lives of smokers, including barriers and facilitators to stopping smoking. In addition, we assessed whether the review investigated potential differential effects of the interventions on smoking behaviour.

Systematic reviews on DARE have to meet a certain quality threshold to be included. Cochrane reviews and reviews commissioned to underpin NICE guidance are produced according to set standards. We therefore did not undertake a further assessment of the methodological quality of the included reviews.

9.5 Details of the included reviews

Electronic searches of DARE and The Cochrane Library identified 13 reviews of potential interest. After assessment eight reviews were deemed relevant. This includes four reviews identified via DARE,[83, 86-88] and two Cochrane reviews.[30, 32] We also included two reviews underpinning NICE guidance.[33, 85] Summary information about these reviews is presented in Table 9.1 at the end of this chapter.

Pregnant women were the focus in all reviews except for two which included post-partum women, [32, 86] and one which focused on the partners of pregnant women.[33] Information about the participants beyond their pregnancy/post-partum status and smoking status was lacking in most reviews.

Across the reviews a number of different interventions were evaluated including telephone support,[87] self-help interventions,[88] counselling,[30, 85] motivational interviewing,[30, 85] staff training,[85] smoke free home policies,[85] NRT,[30, 83] incentives, [30] home visits, [30] interventions aimed at encouraging partner support,[33] and interventions (counselling, educational materials, motivational interviewing) aimed at preventing relapse in recent quitters.[32, 86]

9.6 Results

Overall, few reviews evaluating the effects of smoking cessation interventions in pregnancy have addressed issues of context in any detail.

Social patterning of smoking
Four reviews refer to the social patterning of smoking (Lumley, Baxter, Hemsing and Coleman).[30, 33, 83, 85]

In two of these the discussion was very brief.[83, 85] One of these reviews makes reference to the strong association between smoking and socio-demographic factors such as age and social class;[85] and the other refers to the changing patterns of smoking across income groups and countries and states that smoking causes up to 40% of socio-economic inequalities in still-births and infant deaths.[83]

The two other reviews discuss the issue in more detail.[30, 33] In one,[33] the authors include a section about inequity issues and provide information on the higher rates of smoking in younger women, in women in routine and manual occupations, in less educated women, in women who are non-home owners, in women who are single and in women who have a partner who smokes. The authors also discuss partner's smoking status during pregnancy as being influenced by social disadvantage. In the other review,[30] the authors describe the social patterning of smoking both in pregnancy and in the general population, and focus in particular on the link between tobacco smoking and socioeconomic status. They note that smoking is socially patterned and linked to low educational attainment, young motherhood and poor current circumstances. They also present evidence that continued smoking in pregnancy is associated with poor psychological health, including with depression and stress.

The experiences and everyday lives of smokers
Three reviews discuss the importance of ensuring that interventions are sensitive to the needs and experiences of smokers.[30, 33, 88] In each, discussion largely relates to the need for refinement of future interventions, suggesting that most interventions to date have not addressed the specific needs of their target populations.

One review (Lumley) discusses the need to gain greater insight into the experiences and vulnerabilities of women who continue to smoke during pregnancy and develop sensitive interventions that support women and reduce vulnerability.[30] Women's views of the interventions were reported, although these data come from only 13 out of a total of 72 included studies. Views relate to the specific intervention materials used, and whether women thought the intervention was helpful for giving up smoking. Although limited information is provided, it appears that women were more satisfied when more (rather than less or no) personal contact was offered, although no differences in smoking cessation rates were found between more and less intense interventions.

A second review (Hemsing) suggests a need for research and interventions that examine and value the social context of smoking during pregnancy.[33] This recommendation was made in the context of smoking cessation interventions aimed primarily at the partners of pregnant women. The authors discuss the importance of relationship dynamics to smoking reduction and cessation during pregnancy.

A third review (Naughton) concluded that a greater use of theory is necessary to develop understanding of prenatal smoking that goes beyond the concept of 'stages of change'.[88] In this review, the authors explored the impact of tailored interventions (based on the trans-theoretical model) on smoking cessation rates. They report that the interventions were tailored to participant characteristics, but provide no further details. Therefore, it is unclear how the interventions were tailored to take account of the participants' stage of change (or other characteristics).

Potential differential effects of interventions

One review explored how socio-demographic factors might impact on the effectiveness of an intervention.[33] This review focused on interventions to encourage partners to support smoking cessation during pregnancy and encourage partners who smoked to stop. The authors explored the impact of age, ethnicity and socioeconomic status, and make specific reference to four studies which suggest socioeconomic status is a major influence on the effectiveness of the interventions evaluated. They reported that dropouts were more likely amongst participants with lower incomes and less years in education.

Although the findings are not yet available, there is currently work underway to re-examining outcomes of interventions for promoting smoking cessation in pregnancy included in the Cochrane review published in 2009.[30-31] These additional analyses focus on women in disadvantaged socioeconomic groups and in minority and indigenous groups, and younger women. We understand from the principal investigators that the results are expected to be reported in July/August 2011 (personal communication).

Table 9.1: Summary information of effectiveness reviews

Review reference	Review objective/ participant details	Summary of findings	Contextual factors investigated?	Information on any contextual factors discussed
Levitt, C., E. Shaw, et al. (2007) [86]	To evaluate the effectiveness of interventions that prevent relapse, improve cessation rates and reduce smoking in postpartum women. Women who had given birth, up to 1 year postpartum	A total of three trials were included (two in the USA, one in Denmark), concluding overall that the small evidence base did not show evidence of effectiveness of interventions to prevent relapse.	No	The authors discuss factors that explain why women are at risk of relapse after childbirth including stress, sleep deprivation, partner's smoking behaviour, and concerns about weight (introduction). The authors highlight 2 studies that identify women more likely to stop smoking (women who did not allow smoking in the home) and women less likely to relapse (women who were confident in their commitment to remain a non-smoker, whose husbands did not smoke and did not drink and who were breastfeeding at 12 months) (discussion).
Dennis, C. L. and D. Kingston (2008)[87]	To assess the effects of telephone support on smoking (abstinence, relapse, cessation), preterm birth, low birth weight, breastfeeding and post-partum depression. Pregnant women and new mothers within the first 2 months postpartum	The authors concluded that proactive telephone support may improve some outcomes (including prevention of smoking relapse) and further research was warranted (based on 14 RCTs from USA, Canada, Australia and the UK).	No	No discussion of contextual factors.
Naughton, F., A. T. Prevost, et al. (2008) [88]	To assess the efficacy of self-help interventions for smoking cessation in pregnancy Pregnant smokers at any stage of care, aged 16 years and over. Median age 26 years, median proportion of white participants 70%.	Self-help interventions seemed to be more effective than standard care but there was little data on the impact of tailoring or intensity of intervention (based on 15 trials included across USA, Sweden, Norway, Australia, UK.)	Partially	The authors' explored the impact of tailored (based on the Transtheoretical Model – 'stages of change') versus non-tailored self-help interventions on cessation rates. The authors comment that a greater use of theory to underpin interventions is necessary to develop our theoretical understanding of prenatal smoking beyond the stages of change concept.

Hajek, P., F. Stead Lindsay, et al. (2009) [32]	To assess whether interventions for relapse prevention reduce the proportion of recent quitters who return to smoking (sub-section of this review focused on pregnant and postpartum women) Pregnant and post-partum women (sub-section of review)	Looking at pregnant and postpartum ex-smokers in 14 RCTs (8 trials in pregnancy) covering a variety of brief and intensive interventions, there was no apparent benefit of brief and 'skills-based' relapse prevention methods for women who had quit smoking due to pregnancy.	No	Information about the participants was limited, including for those studies focusing on pregnant and post-partum women. No discussion of contextual factors.
Lumley, J., C. Chamberlain, et al. (2009) [30]	To evaluate the effect of interventions designed to promote smoking cessation in pregnant women Pregnant women or women seeking a pre-pregnancy consultation	This review concluded that significant reductions in smoking in late pregnancy followed intervention (overall by approx. 6%). Interventions reduced low birthweight and preterm birth rates. Population based measures to reduce smoking and social inequalities should be considered.	No	Extensive discussion about the social patterning of smoking. Women's' views of the interventions were reported The authors discuss the failings of smoking cessation programmes, including failure to consider relevant theory, views of women, and women's concerns (eg weight gain and increased fetal size).
+ re-analysis of the data by Bauld L & Coleman T. (2009) [89]	Re-analysis of data in the 2009 review, focusing on different intervention types, including financial incentives.	Raised the issue of incentive based cessation interventions which may be particularly attractive to lower SES groups who are considered to be a key target. Overall conclusion is that relapse prevention interventions do not appear to work and should not be invested in at this stage.	No	Re-analysis is presented in a briefing paper underpinning NICE Guidance. The briefing paper refers to differences in smoking and quit rates between various groups of women.

+ re-analysis by sub-group Oliver[31]	Outcomes re-examined by sub-group including disadvantaged women.	Awaiting publication of the final report.	Yes	Awaiting publication of the final report.
Baxter, S., L. Blank, et al. (2009)[85]	Which interventions are effective and cost effective in encouraging the establishment of smoke free homes? Women who smoke, who are planning a pregnancy, are pregnant or have an infant aged less than 12 months.	There was limited evidence regarding the success of any of the studied interventions to reduce environmental tobacco smoke.	No	The authors briefly mention the strong association between smoking and socio-demographic factors such as age and social class.
Hemsing, N., R. O'Leary, et al. (2009)[33]	To assess the effectiveness of interventions encouraging partners to support smoking cessation during pregnancy and interventions encouraging partners who smoke to stop smoking. Partners of pregnant women	There was strong evidence that effectiveness of an intervention may be influenced by the socioeconomic status of the target audience. There was no available evidence examining the impact of sex or ethnicity.	Yes	This review assessed effectiveness by age, gender, ethnicity, and socioeconomic status. The authors report the social patterning of smoking and discuss the social context of smoking during pregnancy for women and their partners. The authors recommend further research and interventions that examine and value the social context of smoking during pregnancy

Coleman, T., C. Chamberlain, et al. (2011)[83]	To determine the efficacy and safety of nicotine replacement therapy with or without behavioural support when used to support smoking cessation in pregnancy. Pregnant women	Insufficient evidence to conclude if NRT is effective or safe when used in pregnancy for smoking cessation.	No	The authors refer to smoking causing up to 40% of socio-economic inequalities in still-births and infant deaths. They also refer to the economic cost of smoking in pregnancy as a consequence of low birth weight and preterm births.

10. DISCUSSION AND CONCLUSIONS

10.1 Introduction

Like other health-damaging behaviours, smoking in pregnancy is associated with social disadvantage. Women in poorer circumstances are more likely to smoke prior to pregnancy and are less likely to quit. The importance of understanding the social contexts of smokers' lives is increasingly recognised by those designing and delivering interventions.

Knowing more about how people's circumstances can constrain their efforts to make positive changes in their lifestyles is fundamental to achieving the national ambitions set out in the *Tobacco Control Plan*[29] and the government's wider goal of 'improving the health of the poorest, fastest'. [22] The successful transfer of responsibility for public health to local authorities is also predicated on such knowledge. Without an appreciation of how people live their lives, it is difficult to see how local authorities can prioritise interventions and services that best meet the needs of the communities they serve.

However, the primary source of evidence for public health interventions does not provide this contextual understanding. Systematic reviews of interventions measure the effectiveness of interventions; they are not designed to capture evidence on the lives of those who behaviour the interventions seek to change. As our review of systematic reviews of interventions to reduce smoking in pregnancy indicates, systematic reviews have little to say about the social patterning of smoking in pregnancy or about the circumstances and experiences of pregnant smokers (see chapter 9).

For this project, we therefore looked to qualitative studies for insight into the experiences of women who smoke in pregnancy. The qualitative studies provided this insight. However, they are not designed to test and tease out 'what works' in enabling women to initiate and sustain a quit attempt; for this, evaluations of interventions are required.

Systematic reviews of qualitative studies are a recent addition to the public health evidence base, and are recognised to present a number of methodological challenges. Consensus on best approaches has yet to emerge.

In our review, we searched for studies through electronic search engines using validated methods. However, it is known that the indexing of qualitative research is poor, and this may have led to bias in the selection of articles. We therefore supplemented electronic searches with information from experts in the field.

Another challenge is how to achieve transparency in qualitative reviews, given that the reviewers' interpretation drives the synthesis. We worked to maximize transparency in two ways. We used a staged approach to data coding, analysis and synthesis (a 4-staged meta-ethnography) and we used computerised software (Atlas-Ti) to create 'an audit trail' tracking the process from data coding (stage 1) to the overarching lines of argument (stage 4). The lines of argument about women's circumstances and experiences developed through this process showed consistency over time (35 years) and place (studies included from six high-income countries). The continuities in the experiences of pregnant smokers across studies were a striking finding of the review.

However, we recognise that policy and practice differ greatly across settings and over time. Within a country, too, policy and practice can change rapidly; for example, in England, the last decade has

seen major changes in professional approaches to smoking in pregnancy and in the services provided to pregnant smokers to help them to quit. Our synthesised evidence of women's interactions with health professionals therefore provides a broad overview of experiences reported over the last four decades; it does not claim to provide a description of practice across England today. Nonetheless, the findings of our review can resonate with current experience. For example, the 2010 NICE guidance on quitting smoking in pregnancy notes that 'women who are pregnant may receive mixed messages from health professionals about the benefits of cutting down as opposed to quitting smoking altogether'.[20 (p25)]

In searching for studies for our review, we identified a number of qualitative studies linked to evaluations of interventions to promote smoking cessation in pregnancy. Because the EPPI-Centre was undertaking a parallel review of evidence from such evaluations,[31] we did not include these qualitative studies in our review.

> *Research recommendation*: We recommend that consideration is given to a systematic review of qualitative evidence linked to or arising from evaluations of interventions to promote smoking cessation in pregnancy. Such a review could also examine the extent to which the interventions addressed the contextual factors shaping women's smoking and quitting behaviour identified in our review of qualitative studies

10.2 The influence of women's circumstances on their smoking behaviour during pregnancy

Our systematic review points to the multi-layered way in which women's circumstances shape their smoking behaviour before, during and after pregnancy.

The evidence from the qualitative studies suggests that being a smoker is deeply woven into women's past lives and their current relationships with partners, family and friends. Smoking is described as a resource that helps women through each day and as a pleasure to be enjoyed and shared. In line with the quantitative evidence on smoking in pregnancy presented in chapter 1, it was clear that many of the participants in the qualitative studies were disadvantaged and lived with partners who were also smokers. Successful quitting required the woman to be strong enough to face life without cigarettes, while living in circumstances made more challenging by their pregnancy and living with a partner who continued to smoke. It also required adjustment to the negative effects that quitting could have on women's lives. This included the disruption of relationships in which shared smoking habits played a significant role, for example with partners and friends.

Against this backdrop, we highlight four findings from the review with implications for the design and delivery of interventions to support quitting in pregnancy.

The role of partners. Our systematic review indicates that women's domestic relationships are a key dimension of the context of smoking in pregnancy. In line with other research, it points to the influence of partner's smoking behaviour on whether the pregnant smoker attempts and manages to quit.[19] Women report how difficult it can be to sustain the willpower to quit in relationships where smoking habits are part of a domestic lifestyle that couples share. Supportive patterns of partner behaviour were described, including open discussion of how to jointly make changes in smoking habits and how to help the pregnant woman to quit, for example by her partner not smoking in her

presence and respecting smokefree areas in the home. Examples of less supportive behaviours included the partner being resistant to making any changes in his smoking habits; as indicated in our analysis of partners' smoking behaviour in pregnancy in the Millennium Cohort Study, the majority of partners who smoke reported making no changes (Figure 1.3). Even when the pregnant woman quits, most partners who smoked prior to pregnancy neither cut down nor quit (Figure 1.4). Further along the continuum of unsupportive behaviour, some women described how their smoking habits were controlled by their partners, for example, by restricting access to money to buy cigarettes, by withholding affection and by intimidation.

As this suggests, the pregnant smoker's partner can be a facilitator of or a barrier to quitting - and her wellbeing more generally. The critical factor is the wider context of the couple's relationship. Our review uncovered evidence that, in inharmonious and unequal relationships, maternal smoking can be a trigger for coercive and abusive behaviour; gauging the dynamics of the couple's relationship is therefore essential before partners are invited to join with health professionals in helping women to quit smoking in pregnancy.

> *Research recommendation*: We recommend research to map and understand the complex role that partners can play in the lives of pregnant women who smoke, through primary qualitative research, or the synthesis of qualitative research. Such research could inform recommendations on NICE guidance relating to the partners of pregnant smokers as well as helping local authorities to ensure that Stop Smoking Services are sensitive to women's vulnerability within controlling relationships.

Quitting for the baby. Becoming pregnant is a life event that disrupts the taken-for-grantedness of smoking. While being a smoker was an accepted and largely unquestioned identity, being a pregnant smoker was not. Instead it was associated with guilt and a fear of social disapproval because of the risks that it represented to the unborn child.

Wanting to protect their child *in utero* from harm was therefore the primary motivation for quitting. The fact that women wanted to quit for the sake of their unborn baby is not a surprising finding; however, it has consequences that may be less widely appreciated by the public health community. In particular, it meant that giving up smoking was widely perceived to be a behavioural change undertaken only for pregnancy.

Our finding sheds light on the high rates of post-partum resumption of smoking among women who quit in pregnancy (see chapter 1). It suggests that a blanket term like 'relapse' may be inappropriate, a term that describes an unwanted and unintended return to previous behaviour patterns. Our systematic review indicates that, for a significant proportion of mothers, quitting was perceived as a temporary change in their smoking habits; post-partum resumption was therefore expected and intended.

This presents a challenge to those developing and delivering interventions to reduce smoking in pregnancy. On the one hand, capitalising on women's motivation to quit for the sake of their baby is clearly important if the risks of maternal smoking for the unborn baby are to be minimised. Women recounted how hard it was to quit and stay quit in pregnancy, particularly when pregnancy exacerbated their already-difficult circumstances; doing so for the sake of the baby underpinned their determination to succeed. In line with these findings, current NICE guidance advises midwives to 'provide information about the risks to the unborn child of smoking when pregnant' as well as information about the benefits to the baby of quitting.[20]

But on the other hand, an emphasis on foetal risk can lend support to an approach to smoking in pregnancy where women suspend, rather than end, their life-long relationship with cigarettes. This approach was strongly in evidence in the studies in our review. As it suggests, personal support from informal and formal sources was being mobilised to enable women to quit for the unborn baby, and therefore to quit for pregnancy rather than to quit for good.

The individualised support recommended by NICE in its guidance on stopping smoking in pregnancy may have an important role to play here.[20] Our review points to a strong preference among pregnant smokers for sensitive and individually-tailored support from health care providers. Helping pregnant smokers recognise that quitting protects their baby's health after birth as well as *in utero* could provide a way of combining quitting in pregnancy with quitting for good.

Cutting down. The predominant concern of research and policy relating to women's smoking behaviour in pregnancy is with quitting. It is a focus supported by evidence that cutting down offers limited protection to the unborn child.[1, 15] However, while the public health community has given it little attention, cutting down figured prominently in the accounts that smokers gave of their smoking behaviour in pregnancy. The women in the studies included in this review were those who had not abruptly quit smoking at the start of pregnancy; who were struggling to quit or were continuing to smoke. For these women cutting down played a significant role on one of two ways.

Firstly, cutting down emerges from the qualitative studies as a method of quitting. While other approaches were described, cutting down was the one most often reported. In line with patterns in the wider adult population,[26, 90] women described how they gradually reduced their cigarette consumption. Gradual quitting was seen as possible and sustainable in a way that abrupt quitting was not. It was also an approach that some women felt was encouraged by health care professionals.

Secondly, cutting down was identified as an alternative to quitting. In our analysis of the Millennium Cohort Study, cutting down was the most frequently-reported change that smokers made to their smoking behaviour (see Figure 1.2). Echoing this finding, cutting down was a frequently-described response to being a pregnant smoker in our review.

Both women who cut down to quit and women who cut down instead of quitting spoke about the need to make changes in their smoking behaviour for the sake of their unborn baby. However for women who saw cutting down as an end in itself, quitting was not the reference point against which risks to the baby were assessed. Instead, their point of reference was their pre-pregnancy level of smoking. Against this yardstick, cutting down was seen as a major achievement, and a positive change for the better. It was also one that could be accommodated within their daily lives: for example, within domestic relationships where the partner smoked and where other children made legitimate demands on their time and attention. As with cutting down to quit, women's accounts suggested that they felt that health professionals supported this approach. Thus some described receiving advice that there were 'safe' levels of smoking in pregnancy and that their consumption level fell within the 'safe' range.

Again the evidence from our systematic review points to challenges and dilemmas for health care providers engaged in helping and advising pregnant women who smoke. On the one hand, NICE guidance is clear that 'all pregnant women who smoke should be referred for help to quit smoking'[20 (p1)] and that midwives should advise pregnant smokers 'to stop – not just cut down'.[20 (p8)] On the other hand, cutting down – whether as a step along the pathway to quitting or as an end in itself - represents a positive change and one frequently initiated against a backdrop of material and

domestic constraints. Our finding that some health professionals were seen as condoning cutting down is therefore not unexpected.

The challenges facing health professionals working with pregnant women are likely to increase should cut-down-to-quit become a method recognised and supported by Stop Smoking Services. England's *Tobacco Control Plan* acknowledges the potential role that it could play in driving down smoking prevalence in the adult population.[29] As it states, the government will support local Stop Smoking Services in offering smokers 'a range of choices about how to quit (so they) can choose one that suits their needs and wishes'. [29 (p11)]

Yet, while pregnant smokers are part of the population served by local cessation services, abrupt quitting is currently the only method supported by NICE for smoking in pregnancy. Looking to the future, it is possible that women will find that methods offered to them prior to pregnancy are not available to them once they are pregnant - at the time in their lives when they are most motivated to quit.

> *Research recommendation*: We recommend urgent consideration is given to funding research on the place of cutting down in pregnancy, particularly if cut-down-to-quit is to be piloted as a method for potential roll-out through Stop Smoking Services to the general population of smokers.

Perceptions of risk. Running through our synthesis are key messages about women's perceptions of, and trust in, different sources of knowledge about smoking in pregnancy. There was a common perception that scientific evidence was out of line with personal experience and was therefore less trustworthy than knowledge derived from women's everyday lives.

Women recounted how scientific evidence emphasised that smoking in pregnancy was a major threat to the health and survival of the unborn child. They spoke of how it was linked to low birth weight, infant death and cot death. However, personal experience suggested that the risks were exaggerated; they and their friends smoked in pregnancy and had babies who were healthy. Such tensions between 'formal' and 'informal' sources of knowledge, and between 'scientific' and 'lay' theorising about health, have been a long-standing focus of health research (see for example, [91]). Our synthesis adds an important dimension to this literature. It suggests that the tension between these forms of knowledge turns on different constructions of risk.[92]

Scientific evidence, and the professional advice through which is it communicated to patients and the wider public, represents risk in relative terms. It takes babies born to non-smokers as its reference group and estimates how much more likely the risk of an adverse outcome – like low birth weight or infant death – is for babies born to smokers. It concludes that the relative risks are much higher: twice the odds of low birth weight, twice the odds of sudden infant death and a 40% greater chance of dying in the first year of life (see chapter 1).

In contrast, evidence from our synthesis suggests that pregnant women think of risk in absolute terms. In other words, risk was assessed by the women in the studies in terms of how likely it was that the adverse outcome would happen to them. Working with an absolute concept of risk, they assumed that, if they were being told via the media and by their health care providers that the risk was high, this was because the *absolute* risk was high.

However, relative risk tells us nothing about absolute risk: about how common an outcome is, either among smokers or non-smokers. Many of the outcomes associated with smoking in pregnancy are,

fortunately, very rare; the absolute risk is therefore low. For example, there were over 700,000 live births in England and Wales in 2009; of these, 7.2 per cent had a low birth weight (under 2,500 grams) and 281 (0.04%) died of unexplained causes.[93-94] The infant death rate was less than 5 deaths per 1000 live births.[93] With low absolute risks, a doubling of the relative risk among smokers suggests that 6 in 7 children born to smokers will be above 2500 grams; the 40% increased risk of death in the first year of life suggests that 1 in 140 children born to smokers will not survive the first year of life.

The evidence of women's everyday lives was in line with these low absolute risks. The studies are full of accounts in which women note that they, and many of their friends, smoke, yet they have no direct experience of low birth weight, cot death or infant death. As the participants observed, 'I know people that smoke like a trooper and have 8lb babies' 'I've never met anyone who had a problem' 'my friends have big healthy babies and smoked'.

The tension between scientific and everyday concepts of risk appears to underlie both women's distrust of scientific evidence and their reliance on knowledge grounded in personal experience. Health care professionals are caught at the intersection of these two different approaches to understanding and assessing risk. The protocols and guidance which they are expected to follow are informed by the science of relative risk. However, it is absolute risk that matters to their pregnant clients; the accounts that women give of their encounters with health care providers indicates that professionals appreciate this. The evidence from our review suggests that the inconsistency that women perceive in the advice they receive from health care providers may derive, at least in part, from health care providers' attempts to steer a sensitive course between the two concepts of risk.

Our review points to the need to review how the concept of risk is communicated to the public, both with respect to smoking in pregnancy and with respect to health-damaging lifestyles more broadly. We would suggest that consideration is given to examining the potential for a re-framing of health messages to include information on both absolute and relative risk. For example, information on smoking in pregnancy could represent risks both in absolute terms ('there is a small chance that your baby will be low birth weight; there is a very small chance that it may die in the first year of life…') and in relative terms ('…but compared to an expectant mother who does not smoke in pregnancy, the chances of low birth weight are much higher; the risk of your baby dying in infancy is also higher'). A greater public appreciation that both statements are true may help to break down the perception that scientists and health professionals exaggerate the risks of smoking in pregnancy - and are therefore untrustworthy. Our review suggests that such perceptions are entrenched and work against the interests of pregnant women, their children and their families.

> *Research recommendation*: We recommend that studies of perceptions of risk among pregnant smokers and their health care providers are undertaken as a research priority.

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13. APPENDICES

APPENDIX 1: Search strategies for the systematic review of qualitative research

MEDLINE

Searched via Ovid interface.
Database: Ovid MEDLINE(R) <1950 to April Week 1 2010>
Search strategy;

1 findings.af. (918088)
2 interview$.af. or Interview/ (171713)
3 qualitative.af. (79935)
4 1 or 2 or 3 (1117901)
5 ((stop$ or quit$ or reduc$ or give up or giving up) adj2 (cigarette$ or tobacco or smoking)).ti,ab. (9585)
6 *smoking/ (48893)
7 "Tobacco Use Cessation"/ (452)
8 Smoking Cessation/ (14410)
9 "Tobacco Use Disorder"/ (5756)
10 Tobacco/ (18674)
11 Nicotine/ (17914)
12 Tobacco, Smokeless/ (2225)
13 Smoking/pc, th [Prevention & Control, Therapy] (12934)
14 Tobacco Smoke Pollution/ (7752)
15 5 or 6 or 7 or 8 or 9 or 10 or 11 or 12 or 13 or 14 (94668)
16 exp POVERTY/ (23166)
17 poor.ti,ab. (229413)
18 (social$ adj (disadvant$ or exclusion or excluded or depriv$)).ti,ab. (2113)
19 disadvantaged.ti,ab. (4812)
20 (low adj income$).ti,ab. (11223)
21 (social adj problem$).ti,ab. (4387)
22 impover$.ti,ab. (2038)
23 socio-economic.ti,ab. (11963)
24 indigen$.ti,ab. (13839)
25 financ$.ti,ab. (45668)
26 payment$.ti,ab. (13917)
27 social security.ti,ab. (5699)
28 (cash or economic or (money or monetary) or charit$ or temporary assistance for needy families or tanf or welfare or fiscal or budget or (tax$ adj4 credit$)).ti,ab. (122635)
29 monies.ti,ab. (225)
30 Income/ (17690)
31 Social Welfare/ (6903)
32 Social Security/ (6023)
33 Financial Support/ (2553)
34 Public Assistance/ (2121)
35 (socioeconomic$ adj3 depriv$).ti,ab. (455)
36 Minority Groups/ (8216)
37 exp Ethnic Groups/ (86732)

38 (ethnic adj3 minorit$).ti,ab. (4306)
39 (ethnic adj3 group$).ti,ab. (17732)
40 Vulnerable Populations/ (3531)
41 Socioeconomic Factors/ (85194)
42 Population Groups/ (1237)
43 ((multi?ethnic$ or multi ethnic$) adj3 (group$ or population$)).ti,ab. (791)
44 (multi?racial$ or multi racial$).ti,ab. (457)
45 ((underserve$ or disadvantage$) adj3 (group$ or population$)).ti,ab. (2355)
46 16 or 17 or 18 or 19 or 20 or 21 or 22 or 23 or 24 or 25 or 26 or 27 or 28 or 29 or 30 or 31 or 32 or 33 or 34 or 35 or 36 or 37 or 38 or 39 or 40 or 41 or 42 or 43 or 44 or 45 (598664)
47 exp Pregnancy/ (630634)
48 exp Pregnancy Complications/ (289241)
49 exp Maternal Health Services/ (26521)
50 exp Fetus/ (123844)
51 exp Fetal Therapies/ (2500)
52 exp Fetal Monitoring/ (7045)
53 exp Prenatal Diagnosis/ (51424)
54 Perinatal Care/ or Prenatal Care/ (18487)
55 Labor pain/ (343)
56 Analgesia, Obstetric/ (2653)
57 exp Obstetric Surgical Procedures/ (90193)
58 Infant, Newborn/ (431631)
59 exp Postpartum Period/ (41524)
60 Breastfeeding/ (21320)
61 (pregnant or pregnanc$).ti,ab. (288606)
62 Pregnant Women/ or "expectant mother$".ti,ab. (4933)
63 47 or 48 or 49 or 50 or 51 or 52 or 53 or 54 or 55 or 56 or 57 or 58 or 59 or 60 or 61 or 62 (1076098)
64 4 and 15 and 63 (1149)
65 limit 64 to english language (1082)
66 4 and 15 and 46 (1870)
67 limit 66 to english language (1770)
68 65 or 67 (2618)

PsycINFO
Searched via OVID interface.
Database: PsycINFO <1806 to April Week 2 2010>
Search strategy;
1 findings.af. (407110)
2 interview$.af. or Interviews/ (228733)
3 qualitative.af. (113775)
4 1 or 2 or 3 (616136)
5 ((stop$ or quit$ or reduc$ or give up or giving up) adj2 (cigarette$ or tobacco or smoking)).ti,ab. (3840)
6 *tobacco smoking/ (14009)
7 nicotine/ (5715)
8 smokeless tobacco/ (346)

9 Smoking Cessation/ (6048)
10 5 or 6 or 7 or 8 or 9 (19986)
11 exp poverty/ (4001)
12 poor.ti,ab. (45651)
13 (social$ adj (disadvant$ or exclusion or excluded or depriv$)).ti,ab. (2208)
14 disadvantaged.ti,ab. (6625)
15 (low adj income$).ti,ab. (8386)
16 (social adj problem$).ti,ab. (6477)
17 impover$.ti,ab. (2249)
18 socio-economic.ti,ab. (5193)
19 indigen$.ti,ab. (4724)
20 financ$.ti,ab. (22289)
21 payment$.ti,ab. (2880)
22 social security.ti,ab. (1149)
23 (cash or economic or (money or monetary) or charit$ or temporary assistance for needy families or tanf or welfare or fiscal or budget or (tax$ adj4 credit$)).ti,ab. (69745)
24 monies.ti,ab. (106)
25 lower income level/ (4338)
26 Social Security/ (435)
27 "Welfare Services (Government)"/ (2064)
28 (socioeconomic$ adj3 depriv$).ti,ab. (171)
29 exp disadvantaged/ (4994)
30 exp Minority Groups/ (7714)
31 exp Ethnic Groups/ (70576)
32 (ethnic adj3 minorit$).ti,ab. (5471)
33 (ethnic adj3 group$).ti,ab. (10490)
34 ((multi?ethnic$ or multi ethnic$) adj3 (group$ or population$)).ti,ab. (184)
35 (multi?racial$ or multi racial$).ti,ab. (665)
36 ((underserve$ or disadvantage$) adj3 (group$ or population$)).ti,ab. (1725)
37 11 or 12 or 13 or 14 or 15 or 16 or 17 or 18 or 19 or 20 or 21 or 22 or 23 or 24 or 25 or 26 or 27 or 28 or 29 or 30 or 31 or 32 or 33 or 34 or 35 or 36 (230371)
38 exp Pregnancy/ (12531)
39 exp Prenatal Care/ (1100)
40 exp Perinatal Period/ (1136)
41 (pregnant or pregnanc$).ti,ab. (22263)
42 "expectant mother$".ti,ab. (180)
43 38 or 39 or 40 or 41 or 42 (25017)
44 4 and 10 and 37 (1029)
45 limit 44 to english language (1016)
46 4 and 10 and 43 (398)
47 limit 46 to english language (390)
48 45 or 47 (1311)

Social Sciences Citation Index (SSCI)
Searched via Web of Science interface.
Database: SSCI Timespan=All Years (1956 to present)
Search strategy;

1 45,579 TS=(cigarette* or tobacco or smok* or nicotine)
2 27,080 TS=(pregnant or pregnanc*)
3 2,925 #2 AND #1
4 875 TS=(qualitative* or finding* or interview*) AND #3
5 45,397 TS=(cigarette* or tobacco or smok* or nicotine)
6 27,136 TS=(pregnant or pregnanc* or "expectant mother*")
7 80,660 TS=(poor or poverty or disadvantag*)
8 27,945 TS=(impoverish* or "low income" or uninsured or depriv*)
9 37,538 TS=(social* SAME (disadvant* or exclusion or excluded or welfare or problem* or security))
10 10,070 TS=socio-economic
11 22,149 TS=((multi$ethnic or multi$racial or ethnic or racial or vulnerable or underserv*) SAME (group* or population* or minorit*))
12 1,624 TS=((qualitative* or finding* or interview*) AND (#11 OR #10 OR #9 OR #8 OR #7) AND #1)
13 2,226 #4 OR #12 AND Language=(English)

CINAHL
Searched via EBSCO interface.
Database: CINAHL <1982 to April Week 2 2010>
Search strategy;
S60 (S58 or S59)
S59 (S4 and S12 and S40) Limiters - English Language
S58 (S4 and S12 and S57) Limiters - English Language
S57 (S41 or S42 or S43 or S44 or S45 or S46 or S47 or S48 or S49 or S50 or S51 or S52 or S53 or S54 or S55 or S56)
S56 TI "expectant mother*" OR AB "expectant mother
S55 (MH "Expectant Mothers")
S54 TI (pregnant or pregnanc*) OR AB (pregnant or pregnanc*)
S53 (MH "Breast Feeding")
S52 (MH "Postnatal Period+")
S51 (MH "Infant, Newborn")
S50 (MH "Analgesia, Obstetrical")
S49 (MH "Labor Pain")
S48 (MH "Prenatal Care
S47 (MH "Perinatal Care
S46 (MH "Prenatal Diagnosis+")
S45 (MH "Fetal Monitoring+")
S44 (MH "Fetus+")
S43 (MH "Maternal Health Services+")
S42 (MH "Pregnancy Complications+")
S41 (MH "Pregnancy+")
S40 (S13 or S14 or S15 or S16 or S17 or S18 or S19 or S20 or S21 or S22 or S23 or S24 or S25 or S26 or S27 or S28 or S29 or S30 or S31 or S32 or S33 or S34 or S35 or S36 or S37 or S38 or S39) (163230) S39 TI ((underserve* or disadvantage*) N3 (group* or population*)) OR AB ((underserve* or disadvantage*) N3 (group* or population*))
S38 TI (multi?racial* or multi racial*) OR AB (multi?racial* or multi racial*)

S37 TI ((multi?ethnic* or multi ethnic*) N3 (group* or population*)) OR AB ((multi?ethnic* or multi ethnic*) N3 (group* or population*))
S36 (MH "Socioeconomic Factors")
S35 TI (ethnic N3 group*) OR AB (ethnic N3 group*)
S34 TI (ethnic N3 minorit*) OR AB (ethnic N3 minorit*)
S33 (MH "Ethnic Groups+")
S32 (MH "Minority Groups")
S31 TI (socioeconomic* N3 depriv*) OR AB (socioeconomic* N3 depriv*)
S30 (MH "Public Assistance")
S29 (MH "Financial Support")
S28 (MH "Social Welfare")
S27 (MH "Income")
S26 TI monies OR AB monies
S25 TI (cash or economic or money or monetary or charit* or "temporary assistance for needy families" or TANF or welfare or fiscal or budget or "tax credit*") OR AB (cash or economic or money or monetary or charit* or "temporary assistance for needy families" or TANF or welfare or fiscal or budget or "tax credit*")
S24 TI social security OR AB social security
S23 TI payment* OR AB payment*
S22 TI financ* OR AB financ*
S21 TI indigen* OR AB indigen*
S20 TI socio-economic OR AB socio-economic
S19 TI impover* OR AB impover*
S18 TI (social N1 problem*) OR AB (social N1 problem*)
S17 TI (low N1 income*) OR AB (low N1 income*)
S16 TI disadvantaged OR AB disadvantaged
S15 TI (social* N1 (disadvant* or exclusion or excluded or depriv*)) OR AB (social* N1 (disadvant* or exclusion or excluded or depriv*))
S14 TI poor OR AB poor
S13 (MH "Poverty+")
S12 S5 or S6 or S7 or S8 or S9 or S10 or S11
S11 (MH "Smoking/PC")
S10 (MH "Tobacco, Smokeless")
S9 (MH "Tobacco")
S8 (MH "Nicotine")
S7 (MH "Smoking Cessation Programs")
S6 (MM "Smoking")
S5 TI ((stop* or quit* or reduc* or give up or giving up) N2 (cigarette* or tobacco or smoking)) OR AB ((stop* or quit* or reduc* or give up or giving up) N2 (cigarette* or tobacco or smoking)) (3732) S4 S1 or S2 or S3
S3 qualitative
S2 interview* or (MH "Interviews+")
S1 findings

Economic & Social Research Council (ESRC)
http://www.esrcsocietytoday.ac.uk
Data sources included in search;
ESRC Awards & Outputs
ESRC Major Investment Websites;
1970 British Cohort Study
AIM Management Research Initiative (AIM)
British Election Study (BES)
Centre for Analysis of Risk and Regulation (CARR)
Centre for Applied Social Surveys (CASS)
Centre for Business Relationships, Accountability, Sustainability and Society (BRASS)
Centre for Business Research (CBR)
Centre for Competition Policy (CCP)
Centre for Economic and Social Aspects of Genomics (CESAGEN)
Centre for Economic Learning and Social Evolution (ELSE)
Centre for Economic Performance (CEP)
Centre for Economic Policy Research (CEPR)
Centre for Evidence Based Policy and Practice
Centre for Housing Research and Urban Studies (now Department of Urban Studies)
Centre for Longitudinal Studies
Centre for Market and Public Organisation (CMPO)
Centre for Organisation and Innovation (COI)
Centre for Research in Development, Instruction and Training (CReDIT)
Centre for Research in Ethnic Relations (CRER)
Centre for Research into Elections and Social Trends (CREST)
Centre for Research on Innovation and Competition (CRIC)
Centre for Research on Socio-Cultural Change (CRESC)
Centre for Science, Technology, Energy and Environmental Policy (STEEP)
Centre for Social and Economic Research on Innovation in Genomics (INNOGEN)
Centre for Social and Economic Research on the Global Environment (CSERGE)
Centre for the Analysis of Social Exclusion (CASE)
Centre for the Microeconomic Analysis of Public Policy (CPP)
Centre for the Study of African Economies (CSAE)
Centre for the Study of Globalisation and Regionalisation (CSGR)
Centre on Micro-social Change (MISOC)
Centre on Migration, Policy and Society (COMPAS)
Centre on Skills, Knowledge and Organisational Performance (SKOPE)
Children 5-16: Growing into the 21st Century
Complex Product Systems Innovation Centre (CoPS)
Complex Systems Management Centre (NEXSUS)
CRDS DDI
CRDS LOM
Cultures of Consumption
Deafness, Cognition and Language Research Centre (DCAL)
Democracy and Participation
Demonstrator Scheme for Qualitative Data Sharing and Research Archiving (QUADS)

Devolution and Constitutional Change
Economic and Social Data Service (ESDS)
Environment and Human Behaviour
e-Society
ESRC Centre for Genomics in Society (EGENIS)
ESRC Priority Network Capability and Resilience
ESRC Transport Studies Unit (TSU)
ESRC/JISC Census of Population
European Social Survey
Evolution of Business Knowledge (EBK)
Families and Social Capital Research Group
Financial Markets Centre (FMC)
Future Governance
Future of Work
Gender Equality Network (Ge-Net)
Genomics Policy & Research Forum
Global Poverty Research Group (GPRG)
Growing Older
Health Variations
Human Communication Research Centre (HCRC)
Identities and Social Action
Innovative Health Technologies
Intute (formerly Social Science Information Gateway (SOSIG))
Millennium Cohort Study
National Centre for e-Social Science (NCeSS)
National Centre for Research Methods
National Child Development Study
National Data Strategy (NDS)
Network for the Study of the Social Contexts of Pathways in Crime (SCOPIC)
New Security Challenges
Non-Governmental Public Action (NGPA)
One Europe or Several?
Pathways into and Out of Crime: Risk, Resilience and Diversity
People at the Centre of Communication and Information Technologies (PACCIT)
Public Services: Quality, Performance and Delivery Programme
Research Group on Simulating Policy for an Ageing Society (SAGE)
Research Group on the Study of Care, Values and the Future of Work (CAVA)
Research Methods Programme
Rural Economy and Land Use (RELU)
Science in Society
Scottish Longitudinal Studies Centre
Social Context and Responses to Risk (SCARR)
Social Policy Research Unit (SPRU)
Sustainable Technologies Programme
Teaching and Learning Research Programme (TLRP)
ESRC UK Longitudinal Studies Centre (ULSC)
The Question Bank (Qb)

Time Use Survey
Transnational Communities
Tyndall Centre for Climate Change
UK Data Archive (UKDA)
UK Energy Research Centre (UKERC)
Understanding the Evolving Macro-Economy
Violence
Virtual Society
Wellbeing in Developing Countries Research Group (WeD)
World Economy and Finance
Youth, Citizenship and Social Change

ESRC Selected External Sites;

African Journals Online
Bank of England
Basic Skills Agency
British Academy
British Broadcasting Corporation (BBC)
Centre for Public Policy Research (Kings)
Commission for Africa
Commission for Racial Equality (CRE)
Department for Communities and Local Government (formerly ODPM)
Department for Education and Skills
Department for Environment, Food and Rural Affairs (Defra)
Department for International Development (DfID)
Department for Work and Pensions (DWP)
Dysg - the Learning and Skills Development Agency for Wales
Emerald Insight
EPPI-Centre
Europa
Gambling Commission
Government Social Research (GSR)
HM Treasury
Human Rights Watch
info4local
Institute for Public Policy Research (IPPR)
Joseph Rowntree Foundation
Leverhulme Trust
Manhattan Institute
National Institute for Economic and Social Research (NIESR)
Nuffield Foundation
Office for National Statistics
Office for Standards in Education (Ofsted)
Overseas Development Institute (ODI)
Policy Research Bureau
Policy Hub
Research for Development (R4D)

Scottish Executive
Scottish Parliament
Social Science Research Network (SSRN)
Social Science Research Unit (SSRU)
Social Sciences Research Council (SSRC)
The Home Office
The Tomorrow Project
UNESCO Social and Human Sciences Portal
United Nations
Wellcome Trust
Welsh Assembly Government
World Health Organization (WHO)

Search strategy;
(((cigarette* or tobacco or smok* or nicotine) AND (pregnant or pregnanc* or expectant mothers) AND (qualitative* or finding* or interview*))OR((cigarette* or tobacco or smok* or nicotine) AND (poor or poverty or disadvantag* or impoverish* or low income or uninsured or depriv* or exclusion or excluded or welfare or security or socio-economic or ethnic or racial or vulnerable or underserv*) AND (qualitative* or finding* or interview*)))

APPENDIX 2: Data extraction sheet for the systematic review of qualitative research

Reference (author, date #ENL)		
Study design		
Aim		
Research Question (if clearly stated in paper)		
Sample		
	Age (mean/range)	
	Gender/pregnancy	
	Marital status	
	Ethnicity	
	Current smoking	
	Recruited from	
	Indices of deprivation (income, education, eligibility for benefits)	
Location of study		
Methodology (e.g. Grounded Theory, ethnography)		
Methods of data collection		
Analysis (if little evidence of application report as minimal information provided)		
Key results (summary of results, no primary quotations)		
Authors Conclusions		
Interpretation (reviewer's overall impression incorporating quality assessment)		

APPENDIX 3: Summary of included studies for the systematic review of qualitative research

Study ID	Aim	Participants	Data Collection/Analysis	Findings
Abrahamsson et al (2005) [70] **Location** Sweden (South)	To explore pregnant and post-pregnant women's ways of making sense of smoking during pregnancy and the implications for health education about smoking cessation.	**n=17** Recruited from Ante-natal clinics via midwives **Age (mean/range)** Not reported **Gender/pregnancy** Female **Marital status** Not reported **Ethnicity** Not reported **Current smoking** Variety of smoking patterns reported – all participants had either smoked during pregnancy or stopped smoking while pregnant **Indices of Deprivation** All women had a 'low educational level' A conscious effort was made to 'cover different backgrounds' – recruitment was designed around specific background variables (details not reported)	**Methodology:** Phenomenology **Data Collection:** Open ended interviews, following an interview guide. Last five interviews were informed by preliminary data collection **Analysis:** Phenomengraphic approach, moving from content to themes, building stories of smoking sense	Five story types of how smoking is made sense of were developed: Smoking can be justified; will stop smoking later; my smoking might hurt the baby; smoking is just given up; smoking must be taken charge of. Development of a model.

Arborelius & Nyberg (1997) [79] **Location** Sweden	To understand how women with low educational attainment perceive and experience their smoking during pregnancy to inform counselling programmes.	**n=13 (of 17 approached)** Recruited from antenatal clinic in an area of socioeconomic deprivation with high unemployment rate **Age (mean/range)** Mean 29yrs (20 to 38yrs) **Gender/pregnancy** Female, gave birth during a specified 2 month period in 1994, recorded as smoking during pregnancy **Marital status** 11 cohabitating, 2 single mothers Mean 2 children (range of 1 to 5) **Ethnicity** Not reported **Current smoking** Not reported **Indices of Deprivation** 38% had 9 yrs or less education and 62% had 10-11 yrs of education. Swedish averages are 12% and 37% respectively.	**Methodology:** Client-patient centred model **Data Collection:** Individual interviews carried out by three midwives. Supervision provided by one of the researchers during the data collection process. **Analysis:** Client-patient centred model. Some data was categorised and numerically summarised (e.g. in answer to "what do you know about smoking".) The rest were grouped under four themes. Validation with other non-involved midwives.	All participants were aware of the potential risks for their foetus, some had actually experienced these effects but there was still discussion and talk around other women who smoked and gave birth to healthy babies. Majority felt bad for smoking, felt like 'bad people' and concerned for their baby. Most felt that warnings and moralising from midwives did not make them want to cut down, many smoked more.

Bottorff et al (2006)[56] Links to [57] **Location** USA	To examine the challenges that tobacco reduction posed for couples as well as the factors influencing couple dynamics and their influence on women's tobacco reduction efforts during pregnancy and in the post-partum period.	**n= 28** Women and their partners, who had reduced or stopped smoking during pregnancy **Age** F 30 (20-49) / M 33 (20-49) **Gender/pregnancy** **Marital status** 57% married, 43% co-habiting **Ethnicity** Predominantly white (n=21), Asian (3), Latino (1), Aboriginal (1), Multi-ethnic (2) **Smoking during pregnancy:** F – 26 daily smoker before pregnancy, 2 occasional smoker. No of years smoked 14 (6-21+) 21 stopped smoking during pregnancy, 6 reduced tobacco use **Indices of Deprivation** F – 7 high school, 21 post-secondary education	**Methodology:** Grounded Theory **Data Collection:** Open-ended individual (not as couples) interviews in person or via telephone at 2-4 weeks post-partum (regarding tobacco reduction during pregnancy) and 3-6 months post-partum (regarding maintaining tobacco reduction) **Analysis:** Constant comparative techniques to analyse dominant couple dynamics and explore patterns of interactions	Concept of compelled tobacco reduction and the typology of couple related interaction patterns provide a potentially useful framework for examining experiences of smoking cessation and designing intervention messages for women and their partners that go beyond existing social support approaches. Women's engagement with tobacco reduction resulted in fundamental changes to established tobacco routines.

Bull et al (2007) [63] **Location** East Surrey (Horley and Merstham) - UK	To explore the social attitudes towards smoking by pregnant women, mothers of pre-school children and their partners (data relating only to partners not extracted)	**n=38,** of which women = 33, and n=5 partners **Age (mean/range)** Mean age of females = 33yrs (19 to 42 yrs) **Gender/pregnancy** 7/33 women pregnant: 4 with no other children **Marital Status** Married or cohabitating = 31 Single = 2 **Ethnicity** Not reported **Current smoking** 10/33 currently smoking (5 had partners who smoked) 10/33 former smokers (6 had partners who smoked) 13/33 women were non-smokers (2 had partners who smoked) 2 of the current smokers were pregnant. **Indices of Deprivation** N=12 from Morley and n=21 from Merstham Horley rated as 16th out of 20 wards in Surrey for deprivation (Index of multiple deprivation) and Merstham rated as 1st out of 20	**Methodology:** Not reported **Data Collection:** Semi-structured face to face interviews carried out in participants homes **Analysis:** Thematic analysis carried out by two authors independently using emergent concepts and themes to code the data.	Most respondents felt smoking in pregnancy was undesirable for medical and social reasons (including stigma) and pressure to quit came from social angles as well as for health reasons. Some pregnant women denied smoking to health professionals and smoked in secret. Residents in the more deprived area were more tolerant of smoking in pregnancy regardless of smoker status and gave anecdotal examples of smoking being safe, while those in the better off area were only more tolerant if they or a partner smoked. Smokers did not feel the risks were personal to them.

Cottrell et al (2007) [72] **Location** USA	To determine the role of smoking in a young nulliparous pregnant woman's sphere of self and her social interactions.	**n=50** Appalacians, pre-natal clinic in a university health care centre **Age (mean/range)** Female mean age 20years (17-25yrs), Male mean age 25years **Gender/pregnancy** 37 female, 13 male partners **Marital status** 16/37 of women were single 10/37 cohabitated 7/37 married **Ethnicity** Not reported **Current smoking** Female: 26/37 smoking at time of interview 17/37 reported having cut down 23-37 smoked between 0-9 cigarettes per day 6/37 between 10-11 and 8/37 smoked more than 12 per day Male: 69% smokers **Indices of Deprivation** Female: 31/37 graduated high school 5/37 attended some high school 1/37 attended college. Male: 85% completed high school, 15% attended college	**Methodology:** Grounded Theory **Data Collection:** Separate open-ended interviews with woman and partner lasting around 60 minutes. Quantitative measures self-administered after the interviews . **Analysis:** Grounded Theory, performed by two researchers.	Cigarette smoking was more than an addictive activity, woven through women's social and personal realms including relationships and changed as their perceptions of self as a mother to be changed. All participants were aware of the risks of smoking in pregnancy, but differed in seeing quitting as a welcome challenge versus an undesirable burden. Women and partners who continued to smoke appeared to be depressed, reject authority and perceive they had little control over issues relating to pregnancy.

Dunn et al (1998) [74] **Location** USA	To gain insight into attitudes and perceptions about smoking during pregnancy, passive smoke exposure, barriers to quitting and program preferences among women within a low-income, ethnically diverse setting.	**n= 57** **Gender/pregnancy** All female, pregnant or delivered in past 6 months **Marital status** Not reported **Ethnicity** White (n=10) Native American (n=23) African American (n=24) **Age:** White = 15 to 25 yrs Native American = 15 to 25 yrs African American = 15 to 30 yrs **Smoking during pregnancy:** White = 70% Native American = 91% African American = 21% Study area was a diverse, low-income community in a large city. Most participants had completed a high school education or less across groups	**Methodology:** Not reported **Data Collection:** 9 Focus groups, 3 of each ethnic groups **Analysis:** Thematic analysis performed by two researchers	Most results were not specific to individual ethnic groups. Participants were aware that smoking during pregnancy could be harmful to the baby, and indicated varying degrees of concern about their smoking. Most women took steps to reduce the risks alongside beliefs that moderate smoking was less harmful. Lack of knowledge about passive smoke exposure. Barriers to quitting included being around others who smoke, feelings of stress and boredom, addiction, not believing smoking is dangerous enough. Pregnancy related advice from female friends and relatives was valued over professional advice.

Edwards & Sims-Jones (1998) [76] **Location** Canada	To describe the meaning of smoking and smoking relapse in the lives of pregnant women and how they are influenced by interactions with those in their environment	**n=21** (20 analysed due to recording problems) Participants in an RCT of nursing interventions for low risk pregnant women who had either attempted to or successfully quit smoking during pregnancy **Age (mean/range)** ≤24yrs 8/21 25-29yrs 8/21 30-34yrs 3/21 ≥35yrs 2/21 **Gender/pregnancy** All female, all were pregnant when recruited **Marital status** Married = 13 Living with partner = 4 Single/separated/divorced = 4 **Ethnicity** Native language English n=17 **Current smoking** All had attempted to stop smoking, 18 had stopped during pregnancy. At post-partum interview only 7 were still non-smokers. 4 resumed smoking during pregnancy. **Indices of Deprivation** Education: 9/21 completed high school or less 5/21 some college or university 7/21 completed college or university Family Income: 4/21 ≤ $20,000 5/21 $21,000 to $39,999 9/21 ≥ $40,000 3/21 refused or unknown	**Methodology:** Symbolic Interactionism **Data Collection:** Face to face interviews **Analysis:** Described as descriptive level analysis. All authors read all interviews and consensus was used to develop emergent themes. Research associate blind to coding framework cross-checked some of the text.	Three key themes were described: 1. Pregnancy as a context for smoking: the main reasons given for stopping were concerns about baby's health. Those who did not stop were aware of some risks and expressed guilt. Cutting down or quitting was easier for some women who experienced morning sickness. 2. Returning to smoking during pregnancy: stressful events precipitated a return to smoking such as relationship issues or medical problems. *Also includes data on post-partum return to smoking*. 3. Social pressures on smoking behaviour such as social events which influenced decisions about smoking. Support from family, partners and friends was mentioned, and lack of this support was a negative factor. Social disapproval was felt strongly, but this was not perceived as helpful – resulting in 'closet smokers'.

Graham (1976) [59] **Location** UK	To examine the expectant mothers view point on smoking in pregnancy.	**n=50** **Age (mean/range)** Not reported **Gender/pregnancy** All female, all pregnant. 25 expecting first child, 25 expecting second child **Marital status** Not reported **Ethnicity** Not reported **Current smoking** Nearly half smoked prior to pregnancy (inversely related to social class, increasing with age and parity) Of those who smoked 1/3 gave up or cut down during pregnancy 1/3 smoked less for a few months of pregnancy Remainder smoked the same or more **Indices of Deprivation** Not reported	**Methodology:** Not reported **Data Collection:** Face to face interviews **Analysis:** Not reported	Expectant mothers differed in their assessment of the validity of the scientific case rather than in their knowledge of the risks of smoking in pregnancy. Non-smokers were relatively homogenous while smokers were divided between those who discounted the evidence and continued to smoke, and those who smoked despite believing it to be harmful.

Greaves et al (2007)[57] **Location** USA	To identify and describe elements of power and control evident in couple tobacco-related interaction patterns during pregnancy	**n=** Three couples drawn from a larger sample of 30 women and their partners (see #803) as exemplar cases **Age (mean/range)** F 34 (26-43)/ M 33 (31-37) **Gender/pregnancy** 3 females and their partners. **Marital status** All common law **Ethnicity** Not reported **Current smoking** Women all smokers. Men: 1 never smoked, 1 ex-smoker, 1 daily smoker **Indices of Deprivation** Education varied from: left before high school, high school, University	**Methodology:** Case study approach as a secondary analysis to a grounded theory primary study, **Data Collection:** Secondary analysis of data collected as part of a larger study (#803) from three exemplar case studies, which involved open ended interviews conducted with each partner separately at 1-6 weeks post-partum and 16-24 weeks post-partum **Analysis:** The Duluth Domestic Abuse Intervention Power and Control Wheel used as an analytical framework.	Elements of power and control were important and unrecognised dimensions of women's tobacco reduction experiences. These included: using coercion and threats; economic abuse; using male privilege; using children; minimising, denying and blaming; using isolation; using emotional abuse; using intimidation.
Haslam & Draper (2001) [64] **Location** UK	Explore the psychosocial factors underpinning maternal smoking	**n=40** Recruited from antenatal clinics at Leicester Royal Infirmary, UK **Age (mean/range)** Age range 15 to 35 years **Gender/pregnancy** All female and pregnant **Marital status** Not reported **Ethnicity** Not reported **Current smoking** All were current smokers, mean 12 cigarettes per day (range 3 to 30) **Indices of Deprivation** Not reported	**Methodology:** Not reported **Data Collection:** Face to face interviews in private room within ante-natal clinic, 7 women were accompanied by their partners. **Analysis:** One researcher carried out the analysis and the second independently checked it. Transcripts were read and verbatim material sorted	**Factors preventing women from quitting** were given as: other smokers, lack of will-power, physical/psychological addiction and controlling their irritability. **Smoking prompts** given as a list with percentages, most gave more than one. Most focused on dealing with stresses (various), social pressures and boredom. **Health risks**: all but one participant was able to cite several potential risks however half were not worried about these. Reasons given included previous uncomplicated pregnancies

			into emergent themes guided by the research questions.	of their own or family/friends. **Partner Smoking**: mentioned briefly, most reported their partner smoked and half felt this interfered with their motivation to quit **Sources of information**: Most had received leaflets but found them unhelpful. 12 wanted personal contact with health professionals and 19 were surprised at lack of attention to their smoking in antenatal consultations.
Haugland et al (1996)[73] **Location** Norway	To explore pregnant smokers' experiences of ante-natal care and information provided by doctors and midwives during pregnancy about smoking	**n=33** Purposeful, strategic sampling. 60 pregnant women referred for routine ultrasound scanning by their GP's invited to take part. **Age (mean/range)** 20-24yrs 12/33 25-19yrs 12/33 30-35yrs 8/33 >35yrs 1/33 **Gender/pregnancy** All pregnant females receiving routine ultrasound between 16th to 18th week of pregnancy **Previous births:** Para 0 18/33 Para I 7/33 Para II 8/33 **Marital status** Married 13/33 Living with partner 17/33 Single 2/33 Separated 1/33 **Ethnicity** Not reported **Current smoking** Daily smokers in 3 months prior to conception and	**Methodology:** Hermeneutic-phenomenological **Data Collection:** One-hour face-to-face interviews (7 women were interviewed with their partners) **Analysis:** Three stage process of Description, reduction and interpretation. Procedures carried out per interview (case analysis) and across interviews (cross-case analysis) Emerging categories then explained using health behaviour and communication theories. Analyses conducted by the interviewer in cooperation with two co-authors	1. Women reported having received little written information about smoking in pregnancy 2. Women did not feel that health personnel cared about their smoking habits (lack of support, if doctor thinks its not that important to stop then it can't be, cutting down is enough) 3. Those who lacked motivation to stop smoking were most satisfied with the information they received and vice versa (cross-classification example) Overall women were aware there were risks but detailed knowledge of these was poor. Also issues around smoking not being the worst thing the women could do came out. All interviewed women wanted to speak to their doctor and midwife about smoking in pregnancy and

		smoking regularly at ultrasound scan. 32 were smokers at time of the scan, one had recently stopped smoking. **Indices of Deprivation** Not reported **Years of Education:** 9 years 4/33 10-12 years 25/33 >12 years 4/33 **Occupation:** Housewife 3 Unemployed 2 Self-employed 1 Manual worker 2 Clerk 3 Health/social worker 9 Service 12		wanted specific information..

Hotham et al (2002)[71] **Location** Australia	To determine the barriers to smoking cessation for pregnant women prior to a trial of NRT. Attitudes to the use of nicotine patches and perceptions of care provider counselling were also explored.	**n=19** 19 women (of 36 women who agreed to recruitment) put into one of three groups differentiated by risk levels – low risk (n=5), high risk (n=4), and quitters (in pregnancy) (n=10). Risk assessment based on clinical assessment of medical problems or previous obstetric complications. **Age (mean/range)** Not reported **Gender/pregnancy** Not reported **Marital status** Not reported **Ethnicity** Not reported **Current smoking** Not reported **Indices of Deprivation** Not reported	**Methodology:** Not reported **Data Collection: 3 f**ocus groups facilitated by the researchers and using a 'questioning path' developed from an examination of the literature (2 articles). **Analysis:** One focus group was transcribed (Group 3) and themes identified by keyword searching. Groups 1 & 2 were not transcribed but one report of the data from both groups was compiled.	Analysis revealed barriers to smoking cessation which were both pregnancy specific and significant to smokers generally. Pregnancy specific themes were: scepticism about smoking harms; stress about harm leading to increased smoking; societal attitudes. General barriers were: Addiction; reliance on smoking for stress relief; smoking behaviour of others; lack of will power; fear of weight gain; doubt about ability to maintain abstinence. Women generally regarded nicotine patches favourably. Perceptions of care provider counselling were less positive.

Kennison (2009) [53] Plus material from thesis (2004)[52] **Location** USA	Develop a grounded theory about how women make decisions about quitting and actually stop smoking during pregnancy to provide a theoretical foundation for interventions.	**n=**19 women (not explicitly targeting disadvantage) recruited from county health departments **Age (mean/range)** Aged between 19 and 38 years, 9 were younger than 26years**plus 2 older smokers who had children between 1940's to 1970's. **Gender/pregnancy** All female **Marital status** Married/cohabitating n=8, separated/divorced n=3, single n=6 **Ethnicity** American Indian n=1, Black African n=6, Caucasian n=9, multiracial n=1, NS =1 **Current smoking** Their smoking patterns varied from 5 to 30 cigarettes per day **Indices of Deprivation** Income: <$10,000 = 4 $10-$20,000 = 4 $20-£30,000 = 3 $30-$40,000 = 3 >$40,000 = 3 Education: Not high school graduate = 5 GED = 1 High school graduate = 3 Trade or technical school graduate = 3 2 year college degree = 2 4 year college degree = 3 ¼ of sample was in lowest economic bracket, did not graduate from high school and was single or divorced.	**Methodology:** Grounded theory **Data Collection:** Semi-structured tape recorded interviews lasting between 60-90 minutes **Analysis:** Grounded Theory Constant comparison, memo writing and development of the interview schedule during interviewing stages. Coding transcripts and keeping theoretical notes to inform development of a core concept – basic psychological problem/response. Interviews were stopped when felt theoretical saturation was achieved. Analyses were reviewed with another doctoral student and presented/discussed with a smoking cessation group (almost respondent validation), no further details of the group presented.	Grounded Theory: Identified problem was imposed restrictions against smoking; response was to reconcile incompatibilities. **Role of smoking:** **Imposed restrictions:** Initial basic social psychological problem during pregnancy for these smokers – imposition of smoking restrictions. *Strategy – stopping* *Strategy – concealing* Pregnancy was the only context for thinking about smoking cessation for these women. Sources of information were both personal and professional and these became messengers of the social taboo against smoking in pregnancy. Healthcare providers were part of the information/pressure system and a lack of emphasis on smoking cessation was seen as sanctioning the behaviour or at least minimising concern.

Lawson (1994) [55] and (1993) [54] **Location** USA	To examine the role of cigarette smoking in the lives of low-income, pregnant adolescents.	**n=20** Recruited from pre-natal clinic at a public health centre **Age (mean/range)** Mean 16 years (10-18 yrs) **Gender/pregnancy** Female, primigravidae **Marital status** 13 (65%) single 6 (30%) married 1 (5%) separated or divorced **Ethnicity** 14 (70%) white 6 (30%) African-American **Current smoking** 13 (65%) smoked one pack daily, 6 (30%) smoked a pack and a half per day and 1 (5%) smoked 2 packs per day **Indices of Deprivation** Education: mean 10 years of education (7 to 12 years range)	**Methodology:** Not reported **Data Collection:** In-depth interviews lasting 1-2 hours, observation over one year in prenatal classes and social/community locations **Analysis:** Not reported	Results suggest this population smoked to cope with increased weight gain; to deliver smaller infants (decrease duration and pain of delivery); counteract anxiety rising from feelings of abandonment; to establish their identity.
Lendhals et al (2002)[77] **Location** Sweden	To describe pregnant women's experiences of being a pregnant smoker; to identify what makes pregnant women stop smoking; to learn if there is anything; anyone or anytime in connection with pregnancy that makes it easier to stop/change smoking habits.	**n=24** Women who had smoked during pregnancy and had been part of a larger survey of smoking in pregnancy. All women were 2-3 years post delivery. 6 women drawn from each of the 'current smoking' groups below **Age (mean/range)** Age range 20-41years **Gender/pregnancy** All female 9 first time mothers **Marital status** All lived with the father of the baby during pregnancy. Three had separated by the time of interview **Ethnicity** Not reported	**Methodology:** Phenomenology **Data Collection:** Semi-structured, open-ended interviews **Analysis:** Analysis was based on the phenomenological approach. Two authors were involved with the analysis and peer debriefing took place subsequently	Women who were still smoking when attending the antenatal clinic for the first time tended to have established smoking patterns. Differences in responses seem to be related to the person and number of pregnancies rather than belonging to a particular 'smoking group' so the authors treated the results as an integrated whole. Five themes emerged: smoking biography; smoking habits during pregnancy and breast feeding; losses

		Current smoking Women recruited from four groups as a result of the survey 1. Quit smoking during pregnancy and remained non-smokers 2 years after delivery 2. Quit smoking during pregnancy and had been smoke-free for an average of 7 months 3. Quit smoking around the time of delivery and were smoke-free for an average of 3 months Smoked throughout pregnancy and continued to smoke two years after delivery **Indices of Deprivation** 4/24 women had a high school level education 5/24 women unemployed at the time of interview		and gains; the role of midwives and doctors at the ante-natal clinic; the role of other doctors and nurses.
Lowry et al (2004) [60] **Location** Sunderland, UK.	To explore what it is like to be a pregnant smoker in Sunderland and inform the development of and recruitment to a smoking cessation programme	**n=unknown, 12 groups** **No further details reported**	**Methodology:** Not reported **Data Collection:** Qualitative focus groups with women (?) stratified by age, social class, smoking behaviour/history and cohabitation status **Analysis:** Minimal information provided. Group moderators analysed recordings and field notes to extract and develop key themes. These were then used to develop the intervention.	A number of barriers in relation to smoking cessation in pregnancy were identified: • Unsatisfactory information • Lack of enthusiasm or empathy from healthcare professionals • Short term support • Solutions were devised and implemented within the smoking cessation programme Focus groups suggested smoking was more prevalent in women from deprived areas. Reasons for giving up smoking included: giving up for baby and staying off, giving up for baby but only during pregnancy. General awareness of the risks.

Maclaine & Clark (1991) [61] **Location** London, UK	To determine the reasons why some women continue to smoke during pregnancy	**n=22** Women from an antenatal clinic in a teaching hospital **Age (mean/range)** Not reported **Gender/pregnancy** All female, all were pregnant when recruited and between 28 and 40 weeks gestation **Marital status** Not reported **Ethnicity** Not reported **Current smoking** All smoked 5 or more cigarettes during pregnancy and were continuing to do so. 68% started smoking before age of 17yrs 73% smoked more than 15 cigarettes per day before pregnancy 77% of sample reported making an effort to cut down on their smoking **Deprivation** 77% were in Socioeconomic classes IV and V	**Methodology:** Not reported **Data Collection:** 20 minute face-to-face interviews, tape recorded and transcribed for analysis. Checklist statements read out and women asked to answer yes/no if statements applied to them or not. **Analysis:** Content analysis of responses to both the checklist and interview schedule looking for common themes. Comparison of some variables to look for obvious relationships – no further details reported.	Two distinct groups were identified in terms of beliefs about smoking and its effects on pregnancy: 1. Those who smoked, believed it could harm unborn children but that this did not apply to them OR 2. Those who smoked, acknowledged potential harm and felt guilty but did not give up. Strategies for coping included denial of pregnancy, denial of harmful effects. Reasons for continuing to smoke: 1. Scientific evidence could be disputed by proof from family/friends etc 2. Functions of smoking too important to give up e.g. stress relief, weight control 3. Support from professionals or social groups insufficient, lack of practical help.

Nichter et al (2007) [68] **Location** USA	To document smoking trajectories and factors contributing to, or undermining, harm reduction and quit attempts in low-income women who smoked at the onset of pregnancy.	**n=53** Women in 4th or 5th month of pregnancy at recruitment **Age (mean/range)** Mean age 25yrs, range 18-43 years **Gender/pregnancy** All female, no more than 28 weeks pregnant entering study (mean gestational age 19.3 weeks) **Marital status** 32% reported they were married and 68% single, however only 25% reported being in positive stable relationships. **Ethnicity** 62% Anglo American, 21% Mexican American, 11% African American, 6% multi-ethnic **Current smoking** All were daily smokers, pre-pregnancy mean cigarettes per day of 20 (range 4-40). 42% quit during pregnancy for 3 weeks or more, 30% stayed quit. 64% continued to smoke during pregnancy albeit at a lower level. **Indices of Deprivation** All participants had income of less than $30,000 per year for a family of four, or were eligible for Medicaid. 40% were employed. 36% < high school, 38% graduated from high school, 26% did not graduate from high school	**Methodology:** Ethnography **Data Collection:** Semi-structured interviews at women's homes, interviewed 3 times during pregnancy by same researcher. **Analysis:** Transcriptions were coded in ATLASti based on a scheme developed from interview questions and emerging themes in the data. Coders were trained and accuracy was cross-checked and inter-rater reliability established.	Three categories of cigarette use during pregnancy were presented within which key factors were present in varying dimensions. Quitters: 30%, n=16, of women who quit at some point during pregnancy and stayed quit (significant effort required) Harm reducers: 43%, n=23, unable to quit but engaging in harm reduction strategies, reduced smoking to at least 50% of pre-pregnancy levels and maintained to end of term. Done in an attempt to reduce harm to unborn child. Shifters: 26%, n=14, who despite various attempts to reduce and/or quit were unable to reduce intake by 50%. Smoking trajectories marked by short-term erratic changes with both reductions and increases in smoking. This group had the least social support and appeared to be the most vulnerable.
Oakley (1989) [62] **Location** London, UK	Not clearly stated - Qualitative interviews with intervention group within an RCT of social support in pregnancy	**n=254?** Appear to be quotes from 13 different women, TCRU trial intervention arm **Age (mean/range)** Not reported **Gender/pregnancy** Not reported **Marital status**	**Methodology:** Not reported **Data Collection:** Face to face interviews with research mid-wives, questions on smoking, knowledge and need to	Relationship between stress and smoking, dealing with past or ongoing traumatic events, coping with daily life. Relatively well informed about potential risks – not a lack of education

		Not reported **Ethnicity** Not reported **Current smoking** Not reported **Deprivation** Not reported None of this data seems to be reported for the women who were interviewed and contributed qualitative data, only available for the trial sample as a whole.	smoke were included in three semi-structured interviews carried out as part of the RCT. **Analysis:** Not reported	Smoking in pregnancy as a manifestation rather than the cause of the problem of Low Birth Weight, the reduction of socially caused stress may be a more worthwhile health promotion objective to pursue.
Pletsch et al (2003) [78] **Location** USA	To describe the context of and beliefs about smoking cessation in low-income African-American pregnant women	**n=15** 74 women from the Smoke Free Families programme were contacted and invited to participate. Of those who took part: 8 women had received the treatment and 7 received usual care in the programme. **Age (mean/range)** Mean age 25.7yrs (SD 6.3) **Gender/pregnancy** All female, interviewed 3 months to 1 years after taking part in the Smoke Free Families programme **Marital status** Not reported **Ethnicity** 100% African American **Current smoking** All women smoked at least 10 cig/day prior to pregnancy **Indices of Deprivation** On average women lived with 4 other people (range 0-8). Number of smokers in household mean 2.3, range 1-4.	**Methodology:** Not reported **Data Collection:** Face-to-face semi structured interviews plus perinatal health complication data from medical records. Interviews conducted by nurse of the same race. **Analysis:** Thematic content analysis involving two independent researchers	Two major themes were identified: 1. Living the Stressful Life which contained personal and community stress, personal health problems and smoking for stress management CONTEXT 2. Personal Accountability for Smoking Cessation BELIEF Sharp contrast between women's sources of stress (out of their control) and perceived locus of change (personal behaviour). Enhancing personal will to quit would necessitate changing the environment for low-income women of colour.

		71.4% reported yearly income less than $10,000 Mean level of education was 10.7 years (range 6-12 yrs)		
Pletsch & Kratz (2004) [69] **Location** USA	To obtain an in-depth description of the context surrounding smoking behaviours during pregnancy and the first 3 months after women give birth in order to gain insight into the reasons why women resume smoking.	**n=15** women who had stopped smoking without assistance by the time of their first prenatal visit – purposive sample **Age (mean/range)** 24 (SD 5.7) **Gender/pregnancy** 6 primipara, 9 mulitpara **Marital status** Not reported **Ethnicity** 8 African American, 4 non-Hispanic white, 2 Hispanic , 1 native American **Current smoking** Not reported **Deprivation** Education - mean 12 years (SD 1.8) Household income per month $1643 (SD 924)	**Methodology:** 'Longitudinal qualitative descriptive approach' **Data Collection:** In-depth interviews conducted at home on three occasions: early in pregnancy; 36 weeks of pregnancy; 3 months post-partum. One woman completed only the first interview but this data was still analysed. **Analysis:** Narrative summary created then consensus process of coding. Matrix approach adopted using cross and within case analysis to provide thematic content analysis.	All initial interviewees mentioned changes in the taste and smell of primary and second hand smoke, so subsequent interviewees were asked about this type of sensory change. Women described losing their taste for cigarettes with most making a direct attribution of the taste and smell changes of being pregnant. BUT participants all menthol cigarette smokers who could be more sensitive to taste and smell sensations than non-menthol smokers.
Thompson et al (2004) [65] **Location** Northern Ireland, UK	To examine the potential role of partner and friends in helping women quit smoking during pregnancy and how health professionals could make this role more effective.	**n=15** women (of 25 current smokers approached) completed qualitative section reported here. **Age (mean/range)** 16-19= 2, 20-29=9, 30-39=3, 40+=1, range was 17 to 33yrs **Gender/pregnancy** Gestation <20 weeks – 6, 21-30 – 4, 31-40 – 5 **Marital status** Married/co-habiting - 11, Single – 3, Single no partner – 1	**Methodology:** Not reported **Data Collection:** Semi-structured interviews, no further details reported **Analysis:** Taped interviews transcribed verbatim and emergent themes identified	Women tried to cut down their smoking during pregnancy despite being 'committed' smokers. Morning sickness helped with this but some women commonly increased smoking again once this past. Most women had partners who smoked and there was little evidence of partners changing their smoking habits during pregnancy. Partners did make some

		Ethnicity Not reported **Current smoking** All were required to be currently smoking, further details not reported for qualitative sample **Deprivation** Education up GCSE – 6 Education to A level/below degree – 2 'Trade' qualification – 2 No qualifications - 5		women feel guilty about their smoking, or would hide their cigarettes. Little pressure was perceived from close family and friends to stop smoking (nagging was not perceived as negative pressure). Women perceived that their partners and family friends would not want to receive smoking cessation advice as part of a pregnancy initiative.
Tod (2003) [66] **Location** South Yorkshire, UK	To explore and explain barriers to smoking cessation in pregnancy	**n=11** (of 18 approached) pregnant women who smoked, first approached by a midwife **Age (mean/range)** 26 (19-38) **Gender/pregnancy** 6 had children already, 5 first time mothers **Marital status** 10/11 reported to have a partner, of whom 9 smoked **Ethnicity** Not reported **Current smoking** 3-12 day = 9, 20-30 day = 2 Previous smoking ranged from 10 to 30 per day. **Deprivation** Research conducted in deprived areas of South Yorkshire where the levels of smoking related ill health are higher than the national average	**Methodology:** A naturalistic approach **Data Collection:** Semi-structured interviews by telephone (although women given choice of face to face interview). Interviews took 20 minutes and were transcribed in full. Field notes were also taken. **Analysis:** Framework analysis was used (details reported) with the transcripts and field notes.	All women were aware that continuing to smoke during pregnancy could cause their baby harm. There were five barriers identified to explain why women continue to smoke during pregnancy: Willpower; the role and meaning of smoking; the negative influence of family and friends; service issues; interpretation and understanding of the facts

Wakefield (1998) [58] **Location** Australia	Explore the perceived health effects of smoking in pregnancy, incentives for smoking and barriers to quitting. Also to look at the recall and appraisal of smoking cessation advice from antenatal health professionals.	**n= 14** Recruited from public hospital antenatal clinic **Age (mean/range)** 15-19 years **Gender/pregnancy** All female and pregnant **Marital status** Not reported **Ethnicity** Not reported **Current smoking** All smokers **Deprivation** Not reported – recruited from a low socio-economic area	**Methodology:** Not reported **Data Collection:** Focus group discussions (2 groups) **Analysis:** Not reported, mentions themes	All participants were aware of the risk of a low birth weight baby and perceived this negatively, but struggled to articulate why this might be a problem; other adverse risks were little known and reported receiving little information. Pervasive theme of life as a struggle – social instability and financial pressures. Smoking was viewed as a rare pleasure. Social networks included smokers which increased difficulty in quitting. Relatively little concern about weight gain as a result of quitting.
Wood et al (2008)[75] **Location** Australia	Investigate smoking in pregnancy and more generally in the context of Indigenous people's lives. Explore the views and experiences of Indigenous women of childbearing age around: smoking generally, smoking in pregnancy, awareness of risks related to smoking in pregnancy, barriers and potential mechanisms to support smoking cessation	**n=40** Indigenous women recruited via community groups and Indigenous Health Services **Age (mean/range)** most were >30years, range 14 to 50 years **Gender/pregnancy** Most were mothers and 7 self-identified as pregnant **Marital status** Not reported **Ethnicity** All Indigenous Australians **Current smoking** 30 were current smokers, 7 ex-smokers **Indices of Deprivation** No further details reported	**Methodology:** Not reported **Data Collection:** Focus groups and individual interviews **Analysis:** Thematic analysis of transcribed data using Nudist. Data interpretation verified by consultation with indigenous staff.	Smoking in pregnancy is inextricably linked with complex issues such as poverty, unemployment, boredom and stress. It was also seen as a normal part of life. Many Indigenous people have more immediate social, relationship and financial concerns to contend with than giving up smoking. Those who did consider changing smoking habits focused on cutting down.

Ziebland & Fuller (2001) [80] **Location** Oxfordshire, UK	To explore women's attitudes to their partner's smoking behaviours during pregnancy	**n= 19**. Recruited through community midwives, invitation through previous study participation, and previous participation in young mothers' focus group. 'Purposive sampling was used to include a range of ages, parity and social class backgrounds among women who were pregnant at the time of the intervention or had given birth in the last two years'. No further data on the women are provided in the paper **Age** Not reported **Marital Status** Not reported **Ethnicity** Not reported **Current smoking** Women were all smokers at the beginning of pregnancy and had a partner who smoked. **Indices of deprivation** Not reported	**Methodology:** Not reported **Data collection:** In-depth interviews **Analysis:** Interviews were transcribed, and analysed using the method of constant comparison.	Examples of four strategies that are theoretically available to men were identified and described: carry on smoking and encourage the woman to quit; avoid smoking in front of the woman and do not comment on the woman's smoking; avoid smoking in front of the woman and encourage the woman to quit; and avoid smoking in front of the woman and do not comment on the woman's smoking. There may be a mismatch between men's and women's motivation to quit smoking during pregnancy and in the post-partum period. Women are motivated to quit during pregnancy, men may be more keen on quitting once the baby is born.

APPENDIX 4: Quality appraisal checklist and prompts for the systematic review of qualitative research

	Good (4)	Fair (3)	Poor (2)	Very Poor (1)	Comment
1. Abstract and title					
2. Introduction and aims					
3. Method and data					
4. Sampling					
5. Data analysis					
6. Ethics and bias					
7. Findings and results					
8. Transferability/generalisability					
Total					

1. Abstract and title: Did they provide a clear description of the study?

Good	Structured abstract with full information and clear title.
Fair	Abstract with most of the information.
Poor	Inadequate abstract.
Very Poor	No abstract.

2. Introduction and aims: Was there a good background and clear statement of the aims of the research?

Good	Full but concise background to discussion/study containing up-to date literature review and highlighting gaps in knowledge. Clear statement of aim AND objectives including research questions.
Fair	Some background and literature review. Research questions outlined.
Poor	Some background but no aim/objectives/questions, OR Aims/objectives but inadequate background.
Very Poor	No mention of aims/objectives. No background or literature review.

3. Method and data: Is the method appropriate and clearly explained?

Good	Method is appropriate and described clearly (e.g., questionnaires included). Clear details of the data collection and recording.
Fair	Method appropriate, description could be better. Data described.
Poor	Questionable whether method is appropriate. Method described inadequately. Little description of data.
Very Poor	No mention of method, AND/OR Method inappropriate, AND/OR No details of data.

4. Sampling: Was the sampling strategy appropriate to address the aims?

Good	Details (age/gender/race/context) of who was studied and how they were recruited. Why this group was targeted. The sample size was justified for the study. Response rates shown and explained.
Fair	Sample size justified. Most information given, but some missing.
Poor	Sampling mentioned but few descriptive details.
Very Poor	No details of sample.

5. Data analysis: Was the description of the data analysis sufficiently rigorous?

Good	Clear description of how analysis was done. Qualitative studies: description of how themes derived/respondent validation or triangulation. Quantitative studies: Reasons for tests selected hypothesis driven/numbers add up/statistical significance discussed.
Fair	Qualitative: Descriptive discussion of analysis.
Poor	Minimal details about analysis.
Very Poor	No discussion of analysis.

6. Ethics and bias: Have ethical issues been addressed, and what has necessary ethical approval gained? Has the relationship between researchers and participants been adequately considered?

Good	Ethics: Where necessary issues of confidentiality, sensitivity, and consent were addressed. Bias: Researcher was reflexive and/or aware of own bias.
Fair	Lip service was paid to above (i.e., these issues were acknowledged).
Poor	Brief mention of issues.
Very Poor	No mention of issues

7. Results: Is there a clear statement of the findings?

Good	Findings explicit, easy to understand, and in logical progression. Tables, if present, are explained in text. Results relate directly to aims. Sufficient data are presented to support findings.
Fair	Findings mentioned but more explanation could be given. Data presented relate directly to results.
Poor	Findings presented haphazardly, not explained, and do not progress logically from results.
Very Poor	Findings not mentioned or do not relate to aims.

8. Transferability or generalizability: Are the findings of this study transferable (generalizable) to a wider population?

Good	Context and setting of the study is described sufficiently to allow comparison with other contexts and settings, plus high score in Question 4 (sampling).
Fair	Some context and setting described, but more needed to replicate or compare the study with others, PLUS fair score or higher in Question 4.
Poor	Minimal description of context/setting.
Very Poor	No description of context/setting.

APPENDIX 5: Table of excluded studies for the systematic review of qualitative research

Excluded – design: not qualitative
Abrahamsson, A. and G. Ejlertsson (2002). "A salutogenic perspective could be of practical relevance for the prevention of smoking amongst pregnant women." Midwifery 18(4): 323-31.
Albrecht, S. A. and D. Caruthers (2002). "Characteristics of inner-city pregnant smoking teenagers." JOGNN - Journal of Obstetric, Gynecologic, & Neonatal Nursing 31(4): 462-9.
Black, P. (1984). "Towards tomorrow's world. Nine. Who stops smoking in pregnancy?" NURSING TIMES 80(19): 59-61.
Blackburn, C., S. Bonas, et al. (2005). "Smoking behaviour change among fathers of new infants." Social Science & Medicine 61(3): 517-26.
Coleman, P. K., D. C. Reardon, et al. (2005). "Substance use among pregnant women in the context of previous reproductive loss and desire for current pregnancy." British Journal of Health Psychology 10(Pt 2): 255-68.
Davidson-Harden, J. (2009). Predicting smoking behaviour among pregnant smokers using the reasons model and self-determination theory, Davidson-Harden, Jennifer: U Waterloo, Canada.
Ershoff, D. H., V. P. Quinn, et al. (1995). "Relapse prevention among women who stop smoking early in pregnancy: A randomized clinical trial of a self-help intervention." AMERICAN JOURNAL OF PREVENTIVE MEDICINE 11(3): 178-184.
Haslam, C., E. S. Draper, et al. (1997). "The pregnant smoker: a preliminary investigation of the social and psychological influences." JOURNAL OF PUBLIC HEALTH MEDICINE 19(2): 187-92.
Hotham, E. D., A. L. Gilbert, et al. (2005). "Case studies of three pregnant smokers and their use of nicotine replacement therapy." Midwifery 21(3): 224-32.
Hymowitz, N., M. Schwab, et al. (2003). "Postpartum relapse to cigarette smoking in inner city women." JOURNAL OF THE NATIONAL MEDICAL ASSOCIATION 95(6): 461-74.
Letourneau, A. R., B. Sonja, et al. (2007). "Timing and predictors of postpartum return to smoking in a group of inner-city women: an exploratory pilot study." Birth 34(3): 245-52.
Lindqvist, R. and H. Aberg (2001). "Who stops smoking during pregnancy?" ACTA OBSTETRICIA ET GYNECOLOGICA SCANDINAVICA 80(2): 137-141.
Manfredi, C., K. S. Crittenden, et al. (2000). "Minimal smoking cessation interventions in prenatal, family planning, and well-child public health clinics." AMERICAN JOURNAL OF PUBLIC HEALTH 90(3): 423-7.
Moore, L., R. Campbell, et al. (2002). "Self help smoking cessation in pregnancy: cluster randomised controlled trial." BMJ 325(7377): 1383.
Orr, S. T., E. R. Newton, et al. (2007). "Prenatal smoking cessation among Black and White women in Eastern North Carolina." AMERICAN JOURNAL OF HEALTH PROMOTION 21(3): 192-5.
Ortendahl, M. (2008). "Coping mechanisms actually and hypothetically used by pregnant and non-pregnant women in quitting smoking." JOURNAL OF ADDICTIVE DISEASES 27(4): 61-68.
Park, E. R., Y. Chang, et al. (2009). "Perceived support to stay quit: What happens after delivery?" ADDICTIVE BEHAVIORS 34(12): 1000-1004.
Simms, M. and C. Smith (1986). Teenage Mothers and Their Partners: A Survey in England and Wales. DHSS Research Report no.15 London, Department of Health and Social Security.
Tappin, D. M., M. A. Lumsden, et al. (2000). "A pilot study to establish a randomized trial methodology to test the efficacy of a behavioural intervention." HEALTH EDUCATION RESEARCH 15(4): 491-502.
Ussher, M., R. West, et al. (2004). "A survey of pregnant smokers' interest in different types of smoking cessation support." Patient Education & Counseling 54(1): 67-72.
Wakschlag, L. S., K. E. Pickett, et al. (2003). "Pregnant smokers who quit, pregnant smokers who don't: Does history of problem behavior make a difference?" Social Science & Medicine

56(12): 2449-2460.

Ward, K. D., M. W. Vander Weg, et al. (2006). "Characteristics and correlates of quitting among black and white low-income pregnant smokers." AMERICAN JOURNAL OF HEALTH BEHAVIOR 30(6): 651-62.

Excluded – pre-pregnancy or post-partum only

(1993) Smoking mothers with young children: the hidden dilemma. London, Nicotinell: 43.

Bottorff, J. L., J. L. Johnson, et al. (2000). "Narratives of smoking relapse: the stories of postpartum women." Research in Nursing & Health 23(2): 126-34.

Gaffney, K. F., A. E. Beckwitt, et al. (2008). "Mothers' reflections about infant irritability and postpartum tobacco use." Birth 35(1): 66-72.

Goldade, K., M. Nichter, et al. (2008). "Breastfeeding and smoking among low-income women: results of a longitudinal qualitative study." Birth 35(3): 230-40.

Nichter, M., M. Nichter, et al. (2008). "Smoking and harm-reduction efforts among postpartum women." Qualitative Health Research 18(9): 1184-94.

Quinn, G., B. B. Ellison, et al. (2006). "Adapting smoking relapse-prevention materials for pregnant and postpartum women: formative research." Maternal & Child Health Journal 10(3): 235-45.

Ripley-Moffitt, C. E., A. O. Goldstein, et al. (2008). "Safe babies: a qualitative analysis of the determinants of postpartum smoke-free and relapse states." Nicotine & Tobacco Research 10(8): 1355-64.

Bottorff, J. L., C. Kalaw, et al. (2005). "Unraveling smoking ties: how tobacco use is embedded in couple interactions." Research in Nursing & Health 28(4): 316-28.

Excluded – healthcare professionals views

Abrahamsson, A., J. Springett, et al. (2005). "Some lessons from Swedish midwives' experiences of approaching women smokers in antenatal care." Midwifery 21(4): 335-45.

Bull, L. (2007). "Smoking cessation intervention with pregnant women and new parents (part 2): A focus group study of health visitors and midwives working in the UK." Journal of Neonatal Nursing 13(5): 179-185.

Eiser, J., N. Main, et al. (1999). "Midwife attitudes and advice to pregnant smokers." Addiction Research 7(4): 355-368.

Everett, K., H. J. Odendaal, et al. (2005). "Doctors' attitudes and practices regarding smoking cessation during pregnancy." SOUTH AFRICAN MEDICAL JOURNAL Suid-Afrikaanse Tydskrif Vir Geneeskunde. 95(5): 350-4.

Gilbert, P., K. Herzig, et al. (2007). "How health care setting affects prenatal providers' risk reduction practices: A qualitative comparison of settings." Women & Health 45(2): 41-57.

McLeod, D., C. Benn, et al. (2003). "The midwife's role in facilitating smoking behaviour change during pregnancy." Midwifery 19(4): 285-97.

Taylor, P., J. Zaichkin, et al. (2007). "Prenatal screening for substance use and violence: Findings from physician focus groups." Maternal and Child Health Journal 11(3): 241-247.

Excluded - outcomes were programme evaluations

Bryce, A., C. Butler, et al. (2009). "CATCH: development of a home-based midwifery intervention to support young pregnant smokers to quit." Midwifery 25(5): 473-82.

Bull, L., R. Burke, et al. (2008). "The perceived effectiveness of smoking cessation interventions aimed at pregnant women: A qualitative study of smokers, former smokers and non-smokers." Journal of Neonatal Nursing 14(3): 72-78.

Chalmers, K., A. Gupton, et al. (2004). "The description and evaluation of a longitudinal pilot study of a smoking relapse/reduction intervention for perinatal women." JOURNAL OF ADVANCED NURSING 45(2): 162-71.

Crawford, M. A., L. L. Woodby, et al. (2005). "Using formative evaluation to improve a smoking cessation intervention for pregnant women." Health Communication 17(3): 265-81.

McCurry, N., K. Thompson, et al. (2002). "Pregnant women's perception of the implementation of

smoking cessation advice." Health Education Journal 61(1): 20-31. Pullon, S., D. McLeod, et al. (2003). "Smoking cessation in New Zealand: education and resources for use by midwives for women who smoke during pregnancy." Health Promotion International 18(4): 315-25.
Excluded - father/partner views
Bottorff, J. L., J. Oliffe, et al. (2006). "Men's constructions of smoking in the context of women's tobacco reduction during pregnancy and postpartum." Social Science & Medicine 62(12): 3096-108. Bottorff, J. L., J. Radsma, et al. (2009). "Fathers' narratives of reducing and quitting smoking." Sociology of Health & Illness 31(2): 185-200. Oliffe, J. L., J. L. Bottorff, et al. (2010). "Fathers: Locating Smoking and Masculinity in the Postpartum." Qualitative Health Research 20(3): 330-339. Oliffe, J. L., J. L. Bottorff, et al. (2008). "Analyzing participant produced photographs from an ethnographic study of fatherhood and smoking." Research in Nursing & Health 31(5): 529-539. Wakefield, M., Y. Reid, et al. (1998). "Smoking and smoking cessation among men whose partners are pregnant: a qualitative study." Social Science & Medicine 47(5): 657-64.
Excluded – population: smokers and non-smokers not distinguished
Chang, J. C., D. Dado, et al. (2008). "When pregnant patients disclose substance use: Missed opportunities for behavioral change counseling." Patient Education and Counseling 72(3): 394-401. Docherty, A. (2010). Does the socioeconomic background of pregnant women make a difference to their perceptions of antenatal care? A qualitative case study. Department of Nursing & Midwifery. Stirling, University of Stirling. Doctor of Nursing: 344. Graham, H. (1987). "Womens Smoking and Family Health." Social Science & Medicine 25(1): 47-56. Lennon, A., C. Gallois, et al. (2005). "Young women as smokers and nonsmokers: a qualitative social identity approach." Qualitative Health Research 15(10): 1345-59.
Excluded – country: low income
Petersen, Z., M. Nilsson, et al. (2009). "Possibilities for transparency and trust in the communication between midwives and pregnant women: the case of smoking." Midwifery 25(4): 382-91.
Excluded – language: not English
Possato, M., C. Parada, et al. (2007). "Representation of Pregnant Smokers on Cigarette Use: A Study Carried out at a Hospital in the Interior of the State of Sao Paulo." Revista Da Escola De Enfermagem Da Usp 41(3): 434-440.
Excluded - insufficient data reported
BlueEye, L. J. and C. L. Rohweder (2007). "Tailoring Smoking Cessation Services for Pregnant American Indian Women: A Qualitative Foundation." ANNALS OF BEHAVIORAL MEDICINE 33(2007 Annual meeting supplement): Supplement 1, Paper Session #26, S126.
Excluded - protocol
Douglas, F. C. G., D. A. Gray, et al. (2010). "Using a realist approach to evaluate smoking cessation interventions targeting pregnant women and young people." BMC Health Services Research 10.
Excluded – topic: not pregnancy or smoking
Stapleton, H. (2007). Doing sex, having the baby : young women and transitions to motherhood. Department of Sociological Studies. Sheffield, University of Sheffield. PhD thesis.

APPENDIX 6: Quality scores for individual papers for the systematic review of qualitative research

Quality Score (out of 32)	Study ID
30	Pletsch et al (2003) - USA[78]
29	Nichter et al (2007) - USA[68]
29	Tod (2003) - UK[66]
28	Bottorff et al (2006) - USA[56]
28	Haugland et al (1996) - Norway[73]
26	Cottrell et al (2007) - USA[72]
26	Dunn et al (1998) - USA[74]
26	Kennison (2004/2009) - USA[52-53]
26	Lendhals et al (2002) -Sweden[77]
25	Edwards & Sims-Jones (1998) - Canada[76]
23	Bull et al (2007) - UK[63]
22	Lawson (1993/1994) - USA[54-55]
22	Wood et al (2008) - Australia[75]
21	Arborelius & Nyberg (1997) - Sweden[79]
20	Haslam & Draper (2001) - UK[64]
20	Thompson et al (2004) - UK[65]
20	Ziebland & Fuller (2001) – UK [80]
19	Abrahamsson et al (2005) - Sweden[70]
19	Greaves et al (2007) - USA[57]
18	Graham (1976) - UK[59]
18	Hotham et al (2002) - Australia[71]
18	Pletsch & Kratz (2004) - USA[69]
18	Oakley (1989) - UK[62]
17	Lowry (2004) - UK[60]
17	Maclaine & Clark (1991) - UK[61]
11	Wakefield et al (1998) - Australia[58]

APPENDIX 7: Development of translations from codes for the systematic review of qualitative research

BEING A SMOKER

The Centrality of Smoking
(46 codes, 73 items of evidence, from 18 papers)
Being a smoker was perceived as negative experience
Being a smoker was shameful
Belief they could stop at any time
Cigarettes affected their whole life
Cigarettes became a part of their identity
Cigarettes control women
Cigarettes made women feel manipulated
Cigarettes part of social network
Cigarettes play a significant role in women's lives that is not affected by pregnancy
Cigarettes provide identity
Cigarettes seen as a best friend and stable support
Cigarettes were lit out of habit
Context of smoking embedded in the stressors of life
Difficult life circumstances make smoking cessation a low priority
Domestic environment of smokers leads to powerlessness and failed quit attempts
Habit of smoking is greater than the need
Lack of domestic support increases woman's stress
Lack of family support for pregnancy causes stress
Medication used in order to continue smoking
Partners monitor women's smoking
Partners taunt women by smoking
Smokers prioritise spending money on cigarettes
Smoking continues despite causing health problems
Smoking enabled control over out-of-control existence
Smoking gives a feeling of protection
Smoking is a coping mechanism for stress and a hard life
Smoking is a low health priority
Smoking is a social experience
Smoking is a way of controlling hunger and saving money on food
Smoking is an addiction
Smoking is an addiction to be liberated from
Smoking is seen as the best possible choice given the existing life situation
Smoking provides control over stressful situations
Smoking the only remaining form of coping with life stress
Smoking used to manage life stress despite compromised health
Social pressure may increase stress levels
Stress is a strong reinforcer of smoking dependency
Stress triggers smoking
Women get fixated by smoking
Women smoke more in company of smoking friends
Women smoked from an early age
Women started smoking at school
Women wanted more control over their smoking but knew they couldn't manage this

Women wanted to be the master of the cigarette
Women were intimidated by partners over smoking and quit attempts
Young children viewed as only social support

Benefits of smoking
(12 codes, 23 items of evidence, from 8 papers)
Advantages of smoking - company and comfort
Advantages of smoking predominate disadvantages
Cigarettes give a physical high
Cigarettes part of social network
Smoking is a basic need
Smoking is a chance for 'time out'
Smoking is a normal behaviour
Smoking is relaxing
Smoking provides a shared experience with partner
Smoking provides identity
Smoking was a life style
Women love smoking

BEING A PREGNANT SMOKER

The Guilt of Being a Pregnant Smoker
(25 codes, 50 items of evidence, from 13 papers)
As smokers they had felt hunted by the anti-smoking propaganda
Aware of damage cigarettes could cause
Concern baby born addicted to nicotine
Concern expressed over how substance use can affect babies health
Depression caused by pregnancy leads to smoking
External pressure heightens women's own anxieties of damage caused by SiP
Feedback (perceived) from foetus provided guilt
Guilt about harm to foetus caused by smoking
Guilt caused by smoking in pregnancy
Guilt caused by smoking in pregnancy fluctuates
Guilt caused by smoking in pregnancy leads to more stress & increased smoking
Guilt leads to denial of risks and avoidance of learning
Internal conflict of harm to baby and benefits of smoking
Issue of moral identity during pregnancy
Pregnancy a very good reason to change smoking habits
Pregnancy and breastfeeding suppressed need to smoke
Pregnancy can trigger stress which triggers smoking
Pregnancy caused an increased desire to smoke
Pregnancy provides a physiological state in which smoking cessation can occur
Pregnancy provides moral authority over smoking environments where power is not normally present
Shame caused by smoking in pregnancy
Women did not want to be regarded as smokers
Women held strong fears about the damage they may cause their baby through SiP
Women knew smoking puts a baby at risk
Women self-critical of their smoking in pregnancy

Social Disapproval
(19 codes, 37 items of evidence, from 10 papers)
Children provide social pressure for mothers to quit
Compelled tobacco reduction to fulfil social norms
Other people's opinions matter
Outward signs of pregnancy are a motivator to quit
Perceived social judgement led to guilt
Pressure to quit from family and friends during pregnancy, but not ante or post-natally
Pressure to quit from others
Quitting smoking motivated by guilt and stigma
Reduction of smoking in pregnancy not enough to minimise social guilt
Shame caused by smoking in pregnancy
Smoking in pregnancy frowned upon by society
Smoking in pregnancy hidden from others to avoid judgement
Smoking in pregnancy is irresponsible
Smoking in pregnancy judged by others as wrong
Social pressure may act as an incentive to quit
Social pressure may increase stress levels
Social pressure may influence success in stopping
Women don't want social judgement for smoking
Women judge others who smoke despite smoking themselves

Knowledge and beliefs
(66 codes, 104 items of evidence, from 20 papers)
Aware of damage cigarettes could cause
Babies of smoking mothers weigh less
Being told to quit by hcp unhelpful without concrete advice as to how
Cessation advice not perceived as helpful and lacking in concrete strategies
Cessation leaflets unhelpful video may be more so
Cessation support groups perceived as helpful by some
Concern expressed over how substance use can affect babies health
HCP advised reduction if quit attempts unsuccessful
HCP does not enquire about smoking
HCP only enquire about smoking status
HCPs encourage cessation
HCPs gave little support to women who reduce or quit
HCPs give out little written information re smoking in pregnancy
HCPs not perceived as pressurising women to quit
HCPs perceived to endorse 'safe levels' of smoking
HCPs perceived as not doing enough to ensure that pregnant women quit
HCPs unaware of harm caused by smoking (a perception)
HCP advised tobacco reduction not cessation
Health warnings on cigarette packets noted but had little impact
Information from family, friends and GP most highly valued
Information from non-personal sources least valued (includes clinic staff)
Information on smoking in pregnancy given by midwives varied
Knowledge and belief about risks of SiP grounded in a variety of sources
Knowledge of risks of SiP gained from media
LBW attributed to smoking but is not the cause
Media images of smoking in pregnancy had an impact on women

Medical advice did not re-inforce harm of smoking in pregnancy
'Nagging' by midwife throughout pregnancy viewed as positive & may lead to a reduction in consumption
Prematurity associated with smoking in pregnancy
Problems in pregnancy perceived to be due to smoking
Professional and social support inadequate to influence smoking behaviour
Regular consultation with an HCP perceived as helpful
Risks for lbw babies not known
Scientific evidence irrelevant as it ignores the reality of life
Scientific evidence of risk negated by personal experience/beliefs
Scientific evidence weighted more heavily than personal experience
SiP unrelated to low birth weight
Smoking causes low birth weight and this is negative
Smoking causes low birth weight babies
Smoking causing small babies seen as an advantage
Women claim not receive information of the risks of SiP
Women construct the perception of risk of SiP through different explanatory systems
Women did not receive advice on changing behaviour or effects of SiP
Women did not value hypocritical advice on stopping smoking
Women expect moral lectures from HCPs re smoking
Women expected smoking to be addressed at ante-natal clinic
Women expressed disappointment at a superficial approach to ant-smoking by midwives
Women held simultaneous correct and incorrect facts about smoking in pregnancy
Women held strong fears about the damage they may cause their baby through SiP
Women ignored HCP disapproval of smoking
Women knew smoking puts a baby at risk
Women living away from family wanted personal sources of information but could not realise it
Women make sense of SiP by constructing stories, with important elements fluctuating
Women read about SiP
Women resent HCPs being authoritarian re quitting
Women unaware of detail of harm caused by smoking
Women unsure about HCPs attitude towards smoking in pregnancy
Women valued support of anti-smoking propaganda if they successfully quit
Women want HCP to be strict about quitting
Women want ongoing support from HCP to quit, not nagging
Women want proof that smoking causes harm to the baby
Women wanted more information on the risks of SiP
Women weight scientific evidence in the context of their own situation
Women were dissatisfied with existing cessation materials
Women who wanted to stop smoking were not satisfied with the information they received from the doctor and midwife
Written information appeared not to impact on women

Smoking within partnerships
(30 codes, 54 items of evidence, from 12 papers)
Coercion used by partners to narrow a woman's options for smoking
Conflict appears to be minimized if both partners quit smoking together
Couple's relationship more important than tobacco reduction
Couples negotiate their roles in tobacco reduction
Couples who both smoke support each other with reduction or quitting
Couples who smoke - focus on reduction is the pregnant woman

If partners supportive of reduction by woman imbalance mattered less
Male partners restricted access to money to buy cigarettes
Partner controls woman's smoking by threatening to tell her family
Partner supports quitting
Partner withheld affection after woman had smoked
Partners' smoking influenced women's ability to stop
Partners' smoking influenced women's motivation to stop
Partners' support did not extend to stopping smoking
Partners changed environment in which they smoke in rather than giving up
Partners hide cigarettes from women
Partners minimise or deny the influence of their actions on women's ability to quit
Partners monitor women's smoking
Partners provide paradoxical support for quitting
Partners provide some motivation to quit
Partners smoking increases access to cigarettes
Partners smoking reduction use to make women feel guilty about their own smoking
Partners taunt women by smoking
Partners who cut down or quit nag smoking women more
Use of coercion and threats
Women experience resistance when trying to change partner's smoking habits
Women made 'non-smoking' pacts with partners that often failed
Women resent having to police smoke free homes
Women separated physically and socially from smoking partner
Women were intimidated by partners over smoking and quit attempts

Triggers for smoking
(13 codes, 24 items of evidence, from 14 papers)
Boredom is a trigger for smoking
Domestic environment of smokers leads to powerlessness and failed quit attempts
Family and friends may not alter their own smoking behaviour
Pregnancy can trigger stress which triggers smoking
Prompts for smoking come from more than one cause
Proximity and availability of cigarettes as important as smoking them
Smoking caused by stress, boredom and addiction
Stress is a trigger to relapse
Stress of pregnancy is a trigger to relapse
Stress triggers smoking
Stress/boredom of pregnancy led to increased smoking
Women wanted control and a 'normal life' during pregnancy
Worry about foetal health causes increased smoking

QUITTING AND TRYING TO QUIT SMOKING

Motivation to quit
(24 codes, 45 items of evidence, from 14 papers)
Family supportive of quit attempts but did not discuss it
Fear of harming the baby is a motivator to quitting
Foetus provides a motivation to quit
Friends quitting provide pressure for women to quit
Morning sickness provided an incentive to quit
Morning sickness provides protection to the baby by causing smoking cessation

Outward signs of pregnancy are a motivator to quit
Partner supports quitting
Partners provide some motivation to quit
Personal health reasons provide motivation to quit
Pregnancy perceived to be a motivator to stop smoking
Pressure to quit from family and friends during pregnancy, but not ante or post-natally
Pressure to quit from others
Quitting by adopting a strong moral identity as a non-smoker
Quitting smoking motivated by guilt and stigma
Quitting smoking to protect the future health of a child born to challenging environment
Quitting to avoid responsibility for harm to foetus
Social pressure may act as an incentive to quit
Spirituality provides strength for quitting
Taste and smell of cigarette was aversive throughout pregnancy
Women believed they would be able to give up smoking prior to pregnancy
Women choose health of their unborn baby over smoking
Women feel motivated to change smoking behaviour when they find out they are pregnant
Women want to change smoking behaviour when they find out they are pregnant

Trying to quit
(34 codes, 59 items of evidence, from 18 papers)
Calls from a quit line assisted quitting
Cessation advice not perceived as helpful and lacking in concrete strategies
Cessation support groups perceived as helpful by some
Daily strive for smoking cessation
Determination is essential for quitting
Failed attempts at reduction and quitting associated with lack of social support and instability
Feedback from the foetus provided motivation to alter smoking habits
HCP being supportive and non-judgemental lead to increased quit rates
HCPs encourage cessation
HCPs perceived to endorse 'safe levels' of smoking
Lack of social support for quitting
Mental imagery of unborn baby assisted in resisting smoking
NRT cost seen as prohibitive and discriminatory
NRT not trusted in pregnancy
NRT viewed negatively
NRT viewed positively
NRT will not overcome the habit of smoking
Personalised information preferred
Quitting in pregnancy is only a temporary break from continued smoking
Quitting is a personal challenge
Quitting reinforced by strong social support
Quitting relieved women from social pressure to give up
Quitting smoking is a burden
Quitting smoking is tough, hard work
Self-efficacy provides a sense of well being
Smoking cessation facilitated through a series of small steps
Smoking concealed to maintain relationship with HCP
Social pressure may influence success in stopping
Timing of reduction or quitting dictated by stage of development of foetus
Willpower is essential for quitting

Withdrawal symptoms were overcome by wish not to hurt baby
Women choose health of their unborn baby over smoking
Women perceived smoking cessation counselling would be helpful
Women reported cutting down to HCPs in order to feel they were doing right thing

Methods of quitting
(2 codes, 6 items of evidence, from 4 papers)
Changing smoking habits = use of low tar brands and smoking less
Reduction in level and quantity of smoking led to quitting

Personal Consequences of quitting
(11 codes, 13 quotes from 7 papers)
Compelled tobacco reduction alters couples' tobacco related routines
Couples who smoke have to find other activities to replace smoking
Eating is a substitute for cigarettes
Loss of wellbeing from smoking needs replacing when quitting
Quitting smoking causes emotional discord with partners who still smoke
Quitting smoking impacts on friendships
Quitting smoking leaves a void
Quitting smoking may cause weight gain
Quitting smoking reduces social time and intimacy with partners
Women have to give up joint activities to allow their partner to smoke
Women separated physically and socially from smoking partner

CONTINUING TO SMOKE

Cutting down
(20 codes, 32 items of evidence, from 13 papers)
Compelled tobacco reduction due to pressure from others
Compelled tobacco reduction to fulfil social norms
Conflict over tobacco use reduces when woman reduces consumption
Continued smoking for immediate family benefit v uncertain future risk to foetal health
Couples negotiate their roles in tobacco reduction
Couples who both smoke support each other with reduction or quitting
Couples who smoke - focus on reduction is the pregnant woman
Cutting down is a positive change in its own right, not a pathway to quitting
HCP advised reduction if quit attempts unsuccessful
HCP endorsing reduction reduced motivation to quit
Health care professional advised tobacco reduction not cessation
Mixed message from HCP - stress of reduction more harmful to foetus than nicotine
Quitting in pregnancy is bad for the baby
Reduction in smoking out of concern for health of the foetus
Reduction in smoking related to moral identity as a good mother
Reduction in smoking seen as 'good enough'
Reduction in smoking seen as a step towards quitting but not enough in itself
Reduction of risk by cutting back, changing brand or quitting
Reduction of smoking in pregnancy not enough to minimise social guilt
Women who did not quit reduced consumption

Continued smoking
(12 codes, 18 items of evidence, from 10 papers)
Continuation of smoking despite guilt
Continuation of smoking despite knowledge that it is bad for the baby
Continuing smoking achieved by women shielding from social pressure
Functions served by continued smoking outweighed costs of giving up
Medication used in order to continue smoking
Not important or practical to quit during pregnancy
Previous health issues did not preclude smoking in subsequent pregnancies
Smoking continued despite knowledge of adverse effects
Smoking in pregnancy hidden from others to avoid judgement
Women continue to smoke in pregnancy despite attempts to stop
Women judge others who smoke despite smoking themselves
Women who did not stop smoking felt they should have had the motivation to do so

Rationalising continued smoking
(17 codes, 46 items of evidence, from 13 papers)
Cigarettes discounted as a teratogen
Damage caused by cigarettes is exaggerated
Defence mechanisms rationalise continuing smoking
Disconnection or refute of the effects of smoking on self or child
Harm reduction in pregnancy by stopping drug and alcohol intake
HCPs perceived to endorse 'safe levels' of smoking
Not all women accepted smoking was harmful to child
Personal experience and hearsay are used to preserve the smoking behaviour
Pride in quitting alcohol, despite not quitting smoking
Rationality of 'safe' levels of smoking in pregnancy
Reference to healthy babies despite smoking in pregnancy
Smoking a lesser evil than alcohol or drugs
Smoking causing small babies seen as an advantage
Smoking for weight control
Smoking in pregnancy can be justified
Smoking in pregnancy is an individual choice (reinforced by birth of health children to smokers)
Smoking increased during pregnancy to prevent weight gain

APPENDIX 8: Search strategy for the overview of systematic reviews of interventions on smoking cessation in pregnancy

Searches: The Cochrane Library and the DARE database were searched between 2005 and 2011 for recent systematic reviews which focused on smoking cessation in relation to pregnancy. In addition the NICE website was scanned for reviews underpinning the recent NICE Guidance on Quitting Smoking in Pregnancy and Following Childbirth.[20]

Search strategy:

#1 ((stop* or quit* or reduc* or give up or giving up or cessation) near/2
(cigarette* or tobacco or smoking)):ti,ab,kw 4581
#2 MeSH descriptor Smoking explode all trees 4615
#3 MeSH descriptor Tobacco Use Cessation explode all trees 2427
#4 MeSH descriptor Smoking Cessation explode all trees 2378
#5 (#1 OR #2 OR #3 OR #4) 7497
#6 (pregnant or pregnanc*):ti,ab,kw 20307
#7 MeSH descriptor Pregnancy explode all trees 5525
#8 MeSH descriptor Pregnancy Complications explode all trees 6449
#9 MeSH descriptor Maternal Health Services explode all trees 1251
#10 MeSH descriptor Fetus explode all trees 1342
#11 MeSH descriptor Fetal Therapies explode all trees 23
#12 MeSH descriptor Fetal Monitoring explode all trees 323
#13 MeSH descriptor Prenatal Diagnosis explode all trees 830
#14 MeSH descriptor Perinatal Care, this term only 92
#15 MeSH descriptor Prenatal Care, this term only 900
#16 MeSH descriptor Labor Pain, this term only 78
#17 MeSH descriptor Analgesia, Obstetrical, this term only 737
#18 MeSH descriptor Obstetric Surgical Procedures explode all trees 5111
#19 MeSH descriptor Infant, Newborn, this term only 11664
#20 MeSH descriptor Postpartum Period explode all trees 868
#21 MeSH descriptor Breast Feeding, this term only 1030
#22 MeSH descriptor Pregnant Women, this term only 56
#23 "expectant mother*":ti,ab,kw 2
#24 (#6 OR #7 OR #8 OR #9 OR #10 OR #11 OR #12 OR #13 OR #14 OR #15 OR #16
OR #17 OR #18 OR #19 OR #20 OR #21 OR #22 OR #23) 30414
#25 (#5 AND #24), from 2005 to 2011 142