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Short communication

Perceived barriers to and benefits of attending a stop smoking course during pregnancy

Michael Ussher [a,*], Jean-Francois Etter [b], Robert West [c]

[a] *Department of Community Health Sciences (Psychology), St. George's Hospital Medical School, University of London, Cranmer Terrace, London SW17 ORE, UK*
[b] *Department of Epidemiology and Public Health, University College London, London, UK*
[c] *Institute of Social and Preventive Medicine, University of Geneva, Geneva, Switzerland*

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Abstract

Objective: During pregnancy, the uptake of smoking cessation courses is very low. We assessed perceived barriers to and benefits of attending a cessation course during pregnancy.
Methods: A decisional-balance questionnaire was devised, including 10 statements reflecting benefits of attending a cessation course and 10 statements of barriers to attendance. The questionnaire was delivered via the Internet and targeted pregnant smokers/recent ex-smokers. Participants completed the questionnaire on a single occasion, indicating their agreement with each statement.
Results: Among 443 respondents, the most frequently endorsed barriers were 'Being afraid of disappointing myself if I failed' (54%) and not tending to seek help for this sort of thing (41%). The most frequently endorsed benefits were advice about cigarette cravings (74%) and praise and encouragement with quitting (71%). A greater interest in receiving help with quitting from a counselor was significantly associated with: being older, lower income, husband/partner advising cessation and less confidence in quitting.
Conclusion: Pregnant smokers perceive many benefits of smoking cessation courses. However, these women also perceive many barriers to attendance and studies are needed to evaluate interventions for overcoming such barriers.
Practice implications: Smoking cessation services need to address the perceived barriers to attending stop smoking courses during pregnancy, to publicise the benefits of these courses and to target women who feel that they cannot quit without this type of support.

Keywords: Smoking cessation; Counseling; Pregnancy; Uptake; Perceived barriers; Perceived benefits; Decisional-balance

1. Introduction

Behavioural support is effective for smoking cessation during pregnancy [1] and pregnant smokers express a high level of interest in this support [2]. However, the level of uptake of this type of support is very low [3–5]. For example, only around 5% of pregnant smokers make use of stop smoking courses which are available free in the UK [5]. It has been suggested that, among pregnant smokers, barriers to attending stop smoking courses are not being adequately identified and addressed [2]. The present study involved an Internet-based survey to assess perceived barriers to and benefits of attending a stop smoking course during pregnancy.

2. Methods

An Internet-based questionnaire was posted on a smoking cessation website (see http://www.stop-tabac.ch/en/preg/) and was linked to websites addressing smoking cessation and/or pregnancy. The questionnaire targeted those who were both pregnant and a smoker or recent ex-smoker (<month since daily smoking). Increasingly larger numbers of people have access to the Internet. In 2005, 61% of women in the USA had Internet access [6]. While in the UK, in 2004, 53% of UK adults had Internet access at home [7]. The Internet is second only to a physician as the preferred source of health information [8]. In the USA, 79% of Internet users have looked for health information online and around 10% of female Internet users have searched for information on how to stop smoking [9].

* Corresponding author. Tel.: +44 20 8725 5605; fax: +44 20 8266 6470.
E-mail address: mussher@sghms.ac.uk (M. Ussher).

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Table 1
Demographic and smoking characteristics of the sample

Variable	Mean (S.D.)
Age (<18 years: 6.4%, 28/435) ($n = 435$)[a]	27.7 (6.7)
Weeks of gestation ($n = 440$)	10.5 (8.1)
Cigarettes smoked per day at the moment ($n = 390$)	10.3 (10.2)
Cigarettes smoked per day before finding out pregnant ($n = 411$)	17.5 (10.4)
	% (no.)
Caucasian	91.1 (398/437)
Living in North America or the UK	87.2 (381/437)
Professional/managerial occupation	40.3 (169/419)
Household income reported as average or less than average[a]	77.5 (335/432)
Married or living with partner	83.8 (352/420)
Husband or partner smokes	60.9 (270/443)
Husband or partner prefers study participant to stop smoking	80.3 (350/436)
Normally smokes first cigarette within 30 min of waking	56.6 (236/417)
'During your last quit attempt, did you feel an urge to smoke: 1 'not at all' to 6 'extremely strong', for strong + very strong + extremely	76.1 (277/364)
'Are you thinking at all about stopping smoking?', 'yes'	95.2 (373/392)
(i) Interested in stopping in the next month	87.6 (318/363)
(ii) or prefers to stop a bit later on	12.4 (45/363)
If you decided to give up smoking without help, at least until your baby was born, how likely do you think you would be to succeed? 1 'very unlikely' to 4 'very likely', 'very likely[a]	19.5 (83/425)
'Have you made a serious attempt to stop smoking during your current pregnancy?', 'yes'	49.2 (192/390)
'How interested are you in receiving help with stopping smoking from a trained counselor during your current pregnancy?' (4 options: 1 'not at all' to 4 'extremely), moderately + very + extremely interested	45.3 (192/424)
'If this help was not available free of charge, how much would you be prepared to pay for it? (if nothing type 0)', willing to pay	48.5 (184/379)
(Mean (S.D.) amount willing to pay = $29.4 (59.2), $n = 379$)	
'Have you already received this type of help during your current pregnancy?', 'yes'	4.5 (19/424)
'Have you received this type of help during a previous pregnancy?', 'yes'	5.6 (15/269)
'Pregnant smokers who feel they would not be able to stop without it can now use some forms of nicotine replacement (NRT, e.g. nicotine patches/Gums). Would you choose to use NRT to help you to stop smoking during your pregnancy?', 'probably use' + 'definitely use'	35.1 (148/422)
'At any time in your pregnancy has:	
··· a physician told you that you should stop smoking?', 'yes'	64.8 (278/429)
··· a nurse told you that you should stop smoking?', 'yes'	51.1 (217/425)
··· a midwife told you that you should stop smoking?', 'yes'[b]	31.3 (124/396)
··· your husband or partner told you that you should stop smoking?', 'yes'[a]	78.5 (321/409)

[a] Associated ($P < 0.01$) with greater interest in 'receiving help with stopping smoking from a trained counselor', when controlling for other variables.
[b] Low response may be due to the term 'midwife' being uncommon in the North America, where only 21.5% responded 'yes'.

Participants completed the questionnaire on a single occasion. Demographic and smoking-related questions were included (Table 1). In order to increase disclosure of smoking, a question with multiple options was used [10]. A 20-item decisional-balance measure was devised relating to the perceived barriers to and perceived benefits of attending a stop smoking course. Decisional-balance is used to help us understand why people do or do not change behaviour patterns. It assesses their endorsement of a range of negative and positive aspects of changing behaviour [11]. We could identify no previous study examining decisional-balance for attending a stop smoking course.

A focus group with 10 pregnant smokers, recruited via the Patient Administration System at St. George's Hospital, London; was used to elicit perceived barriers to and benefits of attending a stop smoking course. All the participants reported being interested in stopping smoking (mean (S.D.) values: age = 32.7 (5.4), weeks of gestation = 16.5 (6.3), cigarettes smoked per day at the moment = 10.5 (6.30), professional/managerial occupation = 70%, 7/10). Across a 1 hour interview the group focussed on: 'What do you see as the main barriers to and benefits of attending a stop smoking course or clinic if it was free of charge'. Seven themes emerged: social support, advice, confidence, practicalities, fear of disapproval and attitudes towards stopping smoking or stop smoking courses. Using these themes, a decisional-balance questionnaire was devised, including ten statements reflecting benefits of attending a stop smoking course and 10 statements of barriers to attendance (Tables 2a and 2b). Participants in the Internet survey indicated their agreement with each statement on five-point Likert-type scales (1 = strongly disagree to 5 = strongly agree).

Table 2a
Perceived barriers to attending a stop smoking course during pregnancy

Perceived barrier	Response of 'Agree' or 'Strongly agree', % (no.)
Question heading: 'Each statement below gives a disadvantage of attending a stop smoking course or clinic during your pregnancy. Please indicate whether you agree or disagree with each statement.' (1 = strongly disagree, 2 = disagree, 3 = neither agree nor disagree, 4 = agree, 5 = strongly agree)	
1. I am afraid that I would disappoint myself if I failed	54.2 (239/441)
2. I do NOT tend to seek help for this sort of thing	40.6 (179/441)
3. I do NOT have access to such a course	40.5 (178/439)
4. I would NOT have time to attend the appointments	39.8 (176/442)
5. I am afraid that the stop smoking advisor would judge me for smoking	37.0 (163/440)
6. I am afraid that I would disappoint the stop smoking advisor if I failed	26.8 (117/437)
7. I do NOT believe that attending such a course will help me to stop smoking	24.5 (108/440)
8. I do NOT need to attend a course in order to stop smoking	23.3 (102/438)
9. People that are close to me would NOT support me attending such a course	9.8 (43/440)
10. Stopping smoking is NOT particularly important to me	7.6 (33/436)

Respondents were informed that this course would be free of charge, and would typically involve up to six weekly appointments of about 40 min, on an individual basis, with a counselor who would provide expert advice and support towards stopping smoking. This format is typical of that offered in intensive cessation treatments [18].

3. Results

Between October 2003 and August 2004 the questionnaire was completed by 491 pregnant smokers or ex-smokers. Across an arbitrary 3-month period, May–July 2004, the link to the barriers and benefits questionnaire was clicked 2393 times and across the same period 305 pregnant smokers completed the questionnaire. This represents a response rate of 13%. However, it was not possible to estimate the response rate among pregnant smokers as many of those deciding not to complete the questionnaire may have been ineligible due to being male or not being pregnant. Also, some of the women may have clicked on the link more than once before deciding whether or not to complete the questionnaire. Those reporting having not smoked for one month or more were excluded ($N = 48$). Among the remaining 443 women, the reported smoking status, defined as in Mullen et al. (1991) [10], was: 17.6% 'I smoke regularly now, about the same amount as before finding out I was pregnant', 58.2% 'I smoke regularly now, but I've cut down since I found out I was pregnant', 13.1% 'I smoke every once in a while', 9.5% 'I have quit smoking since finding out I was pregnant' and 1.6% 'I wasn't smoking around the time I found out I was pregnant, and I don't currently smoke'. Smoking and demographic characteristics of the sample are presented in Table 1. Compared with the 10 women in the focus group the women participating in the survey were, on average, significantly younger and at a significantly earlier stage of gestation (ANOVA: $P = 0.020$, 0.031, respectively). The women in the focus group and the Internet survey reported smoking, on average, about the same number of cigarettes a day 'at the moment'.

Reports of perceived barriers to and benefits of attending a stop smoking course are presented in Tables 2a and 2b. The most frequently endorsed barriers were 'I am afraid that I would disappoint myself if I failed', 'I do not tend to seek help for this sort of thing' and 'I do not have access to such a course'. Lack of social support and not viewing quitting as being important were reported as barriers by less than 10% of respondents. Around half or more of respondents agreed with all the benefits of attending a stop smoking course. The most frequently endorsed benefits were 'Advice about my

Table 2b
Perceived benefits of attending a stop smoking course during pregnancy

Perceived benefit	Response of 'Agree' or 'Strongly agree', % (no.)
Question heading: 'Each statement below gives an advantage of attending a stop smoking course or clinic during your pregnancy. Please indicate whether you agree or disagree with each statement.' (1 = strongly disagree, 2 = disagree, 3 = neither agree nor disagree, 4 = agree, 5 = strongly agree)	
1. Advice about managing my cigarette cravings would be useful	74.2 (320/431)
2. Praise and encouragement with stopping smoking would be helpful	70.7 (304/430)
3. Advice about safe medications to help me to stop smoking would be useful	69.2 (297/429)
4. Someone checking my progress would be helpful	64.5 (276/428)
5. Sharing my concerns about stopping smoking would be helpful	62.9 (270/429)
6. My chances of stopping smoking would increase	60.0 (257/428)
7. Learning more about the harmful effects of smoking on my baby would be useful	60.0 (256/427)
8. I would feel more confident about stopping smoking	60.0 (259/432)
9. Regular appointments would give me some structure with stopping smoking	55.5 (237/427)
10. It would enable me to obtain medications (e.g. nicotine patches) to help me to quit smoking	47.8 (203/425)

cigarette cravings would be useful' and 'Praise and encouragement with stopping smoking would be helpful'. In an open-ended question, the women were invited to report other advantages or disadvantages of attending a stop smoking clinic. The most frequently reported barriers were lack of childcare (four reports) and work commitments (two reports). The only benefits given were 'Avoid use of NRT' and 'Be aware there are many in the same situation' (one response each).

No previous studies could be identified examining the correlates of interest in attending a stop smoking course during pregnancy. However, smoking behaviour during pregnancy has been shown to be influenced by factors including self-efficacy and for quitting [12], social support [13], age [14], social class [15], smoking status of partner [15], having children [16] and level of dependence on smoking [17]. Therefore, in an exploratory manner, the latter variables, plus stage of gestation, country of residence and whether the women had received this type of help during a current or previous pregnancy, were examined as correlates of having an interest in 'receiving help with stopping smoking from a trained counselor'. In addition, in order to provide some preliminary validation for the measure of decisional-balance, we assessed whether each of the ratings for the perceived barriers and benefits were related to the level of interest expressed in receiving help from a counselor.

Using ANOVAs and Pearson's correlation coefficients, reports of greater interest in receiving help from a stop smoking counselor was significantly associated with reports of being less likely to succeed in quitting without help, a physician or husband/partner advising cessation, being older and a lower household income. There was no evidence of any significant associations between reports of interest in receiving help and having received this type of help during a current/previous pregnancy, being told by a midwife or nurse to quit, cigarettes/day smoked now or before pregnancy, having children, having a husband/partner who smokes, country of residence or stage of gestation. Using a forced-entry regression analysis, a greater interest in receiving help remained significantly associated with being older, and with reports of lower income, a husband/partner advising cessation and being less likely to succeed in quitting without help (all at $P < 0.01$).

For all of the perceived benefits of attending a stop smoking course (Table 2b), those stating that they agreed or strongly agreed with the benefit were significantly more likely to express an interest in receiving help from a stop smoking counselor (ANOVA, all at $P < 0.001$). For six of the perceived barriers (Table 2a) to attending a stop smoking course those expressing agreement or strong agreement concerning the barrier were significantly less likely to express an interest in receiving help from a counselor (ANOVA, all at $P < 0.01$).

The majority of the respondents were from the UK or North America and the UK has a nationally co-ordinated program of specialist smoking cessation support [18], such as the support addressed in this study, which is not present in North America; therefore such support is likely to be more widely available in the UK than in North America. Therefore, we compared the responses to the barriers and benefits items for those residing in the UK versus those residing in North America. Using χ^2 tests, significantly more of those from North America versus the UK agreed or strongly agreed that having 'access' and 'time' were barriers (both at $P < 0.05$) and that 'obtaining medications' and 'receiving advice about medications' are benefits. There were no other significant differences for rating of barriers and benefits between these two regions.

4. Discussion and conclusion

4.1. Discussion

The present study is the first to explore pregnant smokers' perceived barriers to and perceived benefits of attending stop smoking courses. The findings suggest that the majority of pregnant smokers perceive many benefits of attending a stop smoking course. However, only 5–6% of respondents indicated that they had attended a cessation course, during a previous or current pregnancy, and many women reported not having access to these courses or not believing that such courses help. In addition, many pregnant smokers appear not to receive advice to quit from their physician or midwife. Evidently, stop smoking support during pregnancy needs to be more routinely integrated with antenatal care and health professionals need to play a greater role in promoting smoking cessation during pregnancy. Furthermore, smoking cessation clinics may gain by publicizing the benefits of their support, and the findings from this study suggest that this might include publicity about strategies for managing cravings, and advice about safe medications. As consistent with previous findings for smokers in general [19], only 60% of the women agreed that 'My chances of stopping smoking would increase' though attending a stop smoking clinic; therefore further publicity may be needed regarding the increased chances of quitting with help. Those reporting less confidence in quitting without help reported a greater interest in receiving help from a smoking cessation counselor and stop smoking clinics may gain by targeting those who report the lowest confidence in quitting without such support.

Around 40% of respondents reported 'lack of time' as a barrier to attending courses. Combining smoking cessation treatment with scheduled antenatal care could reduce the time burden. However, midwives report difficulty in providing smoking cessation support and even when they do, it does not appear to be effective [17,20]. Providing home visits for smoking cessation may be a more acceptable option [5]. Intensive smoking cessation support is likely to be more widely available in the UK than in North America

and this accounts for why respondents from North America versus the UK were significantly more likely to report 'access' as a barrier. Lack of familiarity with such intensive smoking cessation treatments may explain why more of those from North America versus the UK rated 'lack of time' as being a barrier to attendance. Significantly more of those from North America versus the UK reported 'obtaining medications' and 'advice about medications' as benefits. This is most likely because such medications (and advice about their use) are available free of charge from physicians and specialist counselors in the UK, but not in North America. This also suggests that, particularly in North America, there is a demand for advice about pharmaceutical aids to abstinence.

This study was conducted in a self-selected sample of Internet users and pregnant smokers and our findings may not be generalizable to the general population of pregnant smokers. It was not possible to estimate the percentage of pregnant smokers who selected the link to the questionnaire but chose not to complete it and the self-selected nature of the sample may have resulted in biases; for example, the respondents may have given a more positive appraisal of stop smoking courses than would be found with more representative samples. In the present study smoking consumption and motivation to quit were similar to representative samples of pregnant smokers in the USA and UK [21,22]. Participants in this study were more likely to be in a professional/managerial occupation, Caucasian and unmarried/not living with a partner, than in the representative studies, although the vast majority reported their income as average or less than average. An examination of perceived barriers to and benefits of attending stop smoking clinics in representative samples of pregnant smokers is needed before our findings can be generalized. We also acknowledge that a novel measure of decisional-balance was used and the observation that ratings for 16 of the 20 perceived barriers and benefits were significantly related to the level of interest expressed in receiving help from a stop smoking counselor only provides a very preliminary validation of this measure. Further work is needed to assess the validity and reliability of this instrument, to consider the inclusion of additional items for perceived barriers and benefits and to investigate latent constructs within the measure.

5. Conclusions

Despite the low uptake of smoking cessation courses during pregnancy, in the present study the vast majority of pregnant smokers agreed that there were many benefits of such courses. However, these women also perceived many barriers to uptake of smoking cessation courses. Studies are needed to relate perceived/barriers benefits to actual attendance at stop smoking courses during pregnancy and to evaluate the effectiveness of interventions which attempt to overcome the barriers to uptake of these courses.

5.1. Practice implications

These findings have implications for understanding and tackling the low uptake of smoking cessation courses among pregnant smokers. First, barriers to uptake have been highlighted and these barriers need to be overcome; for example, through establishing attendance at smoking cessation clinics as the norm and making courses widely available and easily accessible. Secondly, the benefits of this type of support were widely endorsed by the pregnant smokers and through publicising these benefits uptake may be increased.

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