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Barriers to the Acceptance of Smoking Cessation Services in Pregnant Women in South Wales

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Abstract

Introduction: Smoking rates in pregnant mothers remains unacceptably high despite the use of many different approaches. In South Wales smoking rates in this group remain high despite free access to professional cessation services. The aim of this study was to determine the barriers to smoking cessation.

Methods: A questionnaire was administered post-partum to 36 mothers who smoked throughout pregnancy and lived within the NHS Cwm Taf University Health Board catchment area, South Wales, UK.

Results: Most mothers (88%) reportedly reduced their daily smoking rate from between 11-15 to less than 10 per day, rather than cease. The majority (78%) did not use a smoking cessation service. The most common reason given for factors which stopped them using cessation services were issues around family support, such as lack of child care. When asked smoking cessation was considered difficult as pregnancy was a stressful time and withdrawal from smoking at this time was deemed to add to the stress.

Conclusion: There is no single factor identified that prevent women using professional smoking cessation services, family factors and further stress avoidance associated with quitting smoking were considered the main barriers. Self-help methods to quit were considered preferable such as nicotine replacement products. Reducing smoking rather than quitting altogether was seen as the easiest option.

Keywords: Pregnant; Women; Smoking; Hospital

Introduction

In Europe the prevalence of smoking in pregnant women is around 26% [1], which is higher than that found for the Welsh population at 23%, but the region covered by the NHS Cwm Taf University Health Board (CTUHB) has one of the highest smoking rates in Wales at 26% and in parts between 35 and 42% [2]. There are around 4100 births (in 2012) per year, and between 1000-1100 pregnant women who smoke are supported by midwives per year. Typically women who smoke during pregnancy have low socioeconomic and educational status, are younger and live with other smokers in comparison to pregnant women who quit smoking during pregnancy or have never smoked [3,4].

The plethora of psychosocial, cultural and social factors that influence women to smoke are complicated by biological factors particularly the female steroid hormones [5]. For women tobacco smoking provides a way of relieving stress and depression, and offering a weight control strategy. Thus the desire to stop smoking during pregnancy is more difficult as this is a time when stress levels typically increase and the hormonal balance shifts [4,5]. In pregnancy other factors such as the influence and advice of the healthcare staff, the design of any smoking cessation services and methods for testing compliance alter cessation success [6-10]. Despite a concerted effort the success rate for smoking cessation in this group is around 6% [11]. The study aims to define the barriers which prevent pregnant women from quitting smoking, and in particular if the absence of a pregnant-specific smoking cessation services is a significant barrier to uptake.

Methods

Participants

Over a three month period, pregnant mothers (n=36) were recruited at the two maternity centres within the Cwm Taf University Health Board region (Table 1). Ethical permission for the study was obtained from both the Faculty and the South East Wales NHS Ethics committee (Rec No 12/WA/0182). Potential recruits were made aware of the project by advertising the study in prenatal clinics which most potential mothers visit at around week 36 of their pregnancy. Post-partum recruitment was directed by the Midwives on the delivery wards of Prince Charles Hospital and the Royal Glamorgan Hospital. Mothers were invited to join the study if they were sixteen years of age or older, were self-reported smokers, smoking daily during pregnancy (part of or throughout) and had a successful pregnancy outcome (including singleton, or multiple births, and those born via elective caesarean). Mothers who experienced a complicated (requiring medical intervention or non-elective surgery) birth were not approached, as were mothers incapable of providing written informed consent, or

Mothers Age (years)	27 (16-42) years
No of Children	2 (1-7)
Gestational age (Weeks)	39 ± 2
Baby birth weight (Kg) (LBW<2.5 kg)	3.05 ± 0.5
Smoking History (years)	11.5 (3-30)
Mean shown ± SD, n= (Range shown in brackets)	

Table 1: Participant demographics.

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reduced mental capacity or did not smoke during pregnancy. The numbers meeting the exclusion criteria were not recorded. Six eligible women declined to join the study and one questionnaire was spoilt, giving a study recruitment rate of 84% (36/43).

Data Collection

A three-part self-reporting questionnaire was created (Appendix). Part one collected data on self-reported smoking rates before and during pregnancy, and any attempts by the mother to quit smoking. The second part was used to assess those mothers who may have quit during their pregnancy. The third part of the questionnaire asked the mothers for feedback regarding smoking in pregnancy and advice they would pass on to other smoking pregnant mothers. Before the study started the questionnaire was tested for validity, reliability and terminology by submitting it to independent healthcare professionals involved in delivering smoking cessation advice and a small sample of pregnant mothers who smoked.

The data collection was overseen by the study team. Serially coded envelopes, containing information packs and decline sheets with matching serially coded forms were placed at both hospital sites. Completed paperwork was sealed in envelopes and placed in a separate box and collected during regular visits. On these visit recruitment targets and encouragement were given to the midwives on duty by the visiting study team member. All participant identifiable data was securely stored.

After giving consent, the Midwife supervised the completion of the questionnaire, while completing a participant information sheet, which recorded the age of the mother, the gestational age and weight of the baby. Statistical software (Sigmaplot, V12.5, Sysstat Inc, USA) was used to define means and make comparisons, significance was set at $p<0.05$.

Results

Self-reported daily smoking rates before and during pregnancy were categorised into four groups and plotted against the term birth weight (Figure 1). The reported pre-pregnancy smoking rate showed a significant ($p=0.032$, ANOVA) inverse trend with the birth weight decreasing with increased daily smoking rate (Figure 1). This trend was lost ($p=0.131$) when comparing the daily reported smoking rates during pregnancy, as most mothers (72%, 26/36) reported that they reduced their daily cigarette consumption. The majority smoking less than 10 per day 88% (23/26) (Figure 2). The remainder did not alter their smoking habit, nobody increased their smoking rate.

The proportion of co-inhabitant smokers was 42% which is not significantly higher than expected for this area ($P=1.0$, Fisher Exact Test).

Advice about smoking

Most mothers (81%, 29/36) received advice on the possible harmful effects of smoking to their babies (6 received no advice). The Midwives provided the advice in most cases (75% 12 of 16 responses) while advice from GP's and Stop Smoking Wales being another source (12.5%, 2:16). Of the small group of mothers who took up the referral (38%, 3:8), Stop Smoking Wales was the most popular (67%, 2:1) (Figure 3). When asked to identify which of five factors would put mothers off from attending a smoking cessation service, the two most popular were, that the mother was not ready to quit (35% 18:52) and arranging child care (19% 10:52) (Figure 4).

When asked would anything make it easier to help you to quit (Figure 5). The majority of responses were nicotine replacement products such as patches and gums (31%, 17:54), this was followed by nothing (15%, 8:54) and receiving one to one advice at a Health Centre (13%, 7:54).

When mothers were asked if they had tried any other ways to give up smoking during pregnancy, the majority answered no (69%, 25:36), of those that replied yes (28%, 10/36), electronic cigarettes (n=4), cutting-down (n=3) and nicotine patches/inhaler (n=3) were the methods tried. In this group (3/10) it was stated that electronic cigarettes and the nicotine patches/inhaler reduced craving.

When the mothers were asked: Do you think it is easier to reduce smoking rather than stopping altogether during pregnancy the majority replied yes (81% 29:36). When given the opportunity to describe why, those that replied (15/36) gave a range of reasons which can be broadly placed into three categories. In the first category mother's expressed concerns about giving up and thought it was easier to cut down than quit. The second category encompassed, the view that trying to give up smoking added to what was already a stressful time. It was also believed that if the mother was stressed then this would stress the baby. The third category covered behavioural concerns, such as attempting to stop smoking increased anxiety and mood swings. It seems that cigarettes were seen as a reward, for coping with the everyday stress of being an expectant mother. No participant quit smoking during her pregnancy so no one answered the questions in section two.

Advice to other smoking mothers

Data from Part 3 of the questionnaire showed that 36% (13/36) of participants offered advice, a common theme was to advise mothers on the harmful short term effects of smoking (ie low birth weight, prematurity and asthma). Few recommended seeking help to quit. One mother stated that she knew many people who had smoked during their pregnancy and despite this had healthy babies. In some cases the low birth weight was seen as an advantage.

The mothers were also asked "Can you think or suggest any ways which would help pregnant women stop or reduce smoking while pregnant"? Of those who commented (28%, 10/36) a common theme was that cutting down was easier as the pressure to give up created more anxiety on top of being pregnant.

Discussion

Mothers reportedly reduced their daily smoking rate which fell from11-15 per day (median) to 1-10 per day during pregnancy. With a self-reported daily smoking rate it is difficult to confirm if this is a true reflection of smoking rates. The relationship between self-reported prenatal smoking rate and the post-partum baby weight shows that those who smoked the most tended to have the lighter babies as would be expected [12]. However, this relationship is absent in the self-reported smoking rate during pregnancy. This data suggests that the reported prenatal rates are a better reflection of the smoking rate during pregnancy. In this study the mothers tended to underestimate or underreport the smoking rate during pregnancy. To obtain accurate information on abstinence or smoking levels interventional methods are required such as measuring exhaled breath carbon monoxide or saliva cotinine levels, but even these methods have associated cofounding issues [3,4,13].

This survey showed that in the Cwm Taf region pregnant mothers who continue to smoke during their pregnancy are not being referred (71%), or decline to use, the available smoking cessation services (Figure 3). Those that were referred (29%) to services were referred in most cases by a midwife. Most pregnant women are seen by a community or hospital midwife during their early pregnancy so they

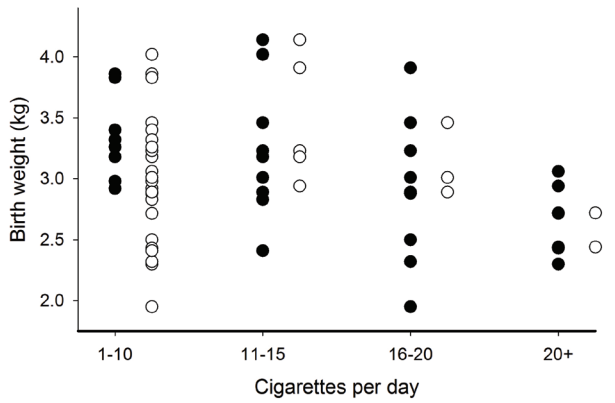


Figure 1: Term birth weight versus self-reported daily smoking rates before becoming pregnant (•) and during pregnancy (o).

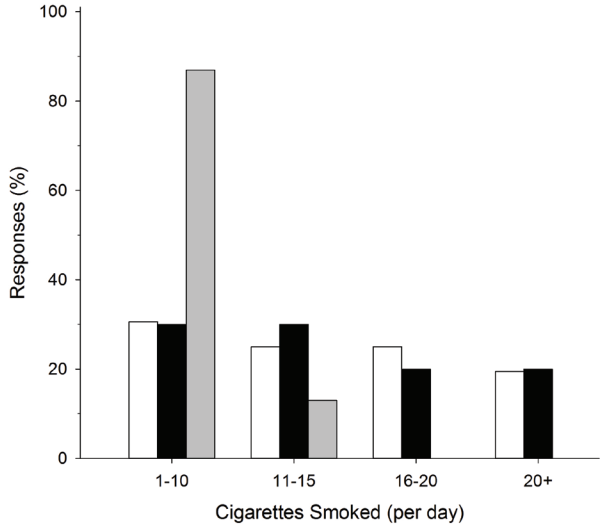
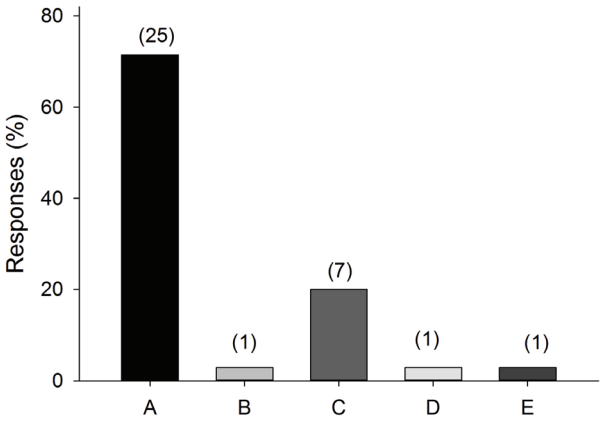
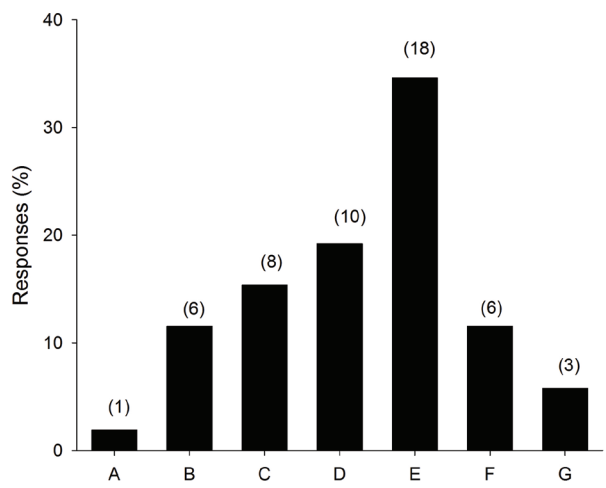


Figure 2: Combined data from Q1.02 (pre-pregnancy rates, white) and Q 1.03 (cigarettes smoked during pregnancy) showing those that did not give up (black) and those that reduced their consumption (grey).



Key: A: No, I wasn't referred, B: Yes, my GP referred me, C: Yes, my Midwife referred me, D: I was referred by someone else, and E: other.

Figure 3: Referral to a smoking cessation service (Q1.06).



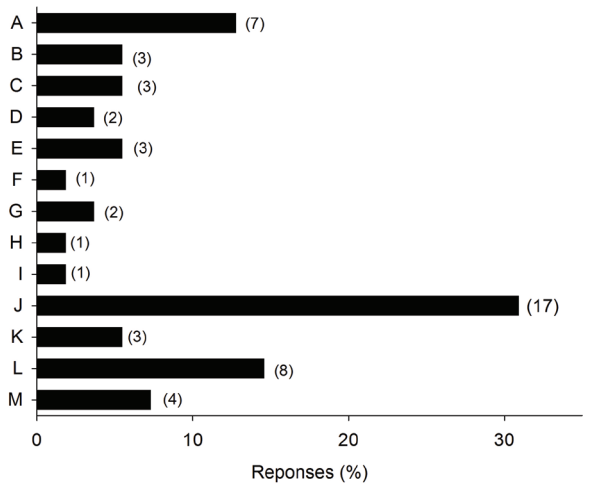
Key: A: Mixed groups sessions (not just pregnant mothers), B: Transport to and location of sessions, C: Timing of sessions, D; Arranging child care, E: Not ready to quit smoking, F: Other, and G: No reply.

Figure 4: Barriers to using smoking cessation services (Q1.08). Note that multiple choices were allowed.

provide the best opportunity for identifying smokers, giving advice on smoking, and providing referral to cessation services. In a large UK study 93% of pregnant mothers were identified in this way during their first trimester [9]. The reasons for not using cessation services were varied (Figure 4), with the most popular reason being that the mother was not ready to quit (35%), in the remainder the lack of family support was an issue, with the difficulties of arranging child care (19%), the timing of sessions (15%) and transport to and from the sessions (12%) being a problem. It was believed that the lack of a pregnant-specific cessation service would be an important barrier to using the cessation services but this did not seem to be the case, with only one respondent identifying this issue. Thus it seems a specialist pregnancy service is less important to mothers in the Cwm Taf region, than a flexible and more client-centred one, which would provide home visits and include mechanisms for family support. Such a service would give mothers more free time to attend sessions. In many parts of the UK this service delivery format is already common place [9].

The survey showed that mothers were aware of the variety of cessation methods available to them but were not motivated to try and stop smoking (Figure 5). The main intervention mentioned was nicotine replacement therapy, NRT (31%) [14,15]. Behavioural support was less popular, and the idea of one-to-one support (13%) was the most popular method, followed by peer support (9%). Surprisingly few thought that incentive payments would be useful. Most studies report that financial incentive schemes reduce smoking rates, but work least well in mothers from lower socio-economic backgrounds [16,17]. This survey was conducted before electronic cigarettes were widely available and may now supplant NRT patches and gums as methods of cessation.

The majority of the mothers surveyed knew about the harmful effects of smoking, having received advice from healthcare professionals such as midwives and general practitioners. The principle harm identified was low birth weight. Some mothers saw this as an advantage in that the delivery would be easier. None of the mothers considered the long term effects of a low infant birth weight or the chronic effects this might have on the child. This recognition that smoking reduced birth weight was the information that mothers chose to pass on to other newly pregnant women. Reflecting their own views they did not



Key: A: Receiving one to one advice at a Health Centre, B: Attending support groups specifically for pregnant women, C: Home visits with one to one help, D: Talking to an ex-smoker, E: Talking to ex-smoker who quit during her pregnancy, F: Whole family support, G: A Self-Help Information Pack, H: Telephone support, I: On Line support, J: Nicotine patches and gums , K: Incentive payments, L:, None of these, and M:,other.

Figure 5: Methods to help quit (Q1.09). Note that multiple choice was allowed.

advocate smoking cessation but smoking reduction as they believed this to provide a balance between managing their own perceived stress levels and the health needs of their babies. The prevalence of unhealthy risky behaviour such as this is more common in younger women and is area that needs to be addressed when designing an effective cessation service [18].

Study limitations were the small number of participants. To obtain representative data it was collected post-partum from mothers who admitted smoking throughout their pregnancy. Only mothers with uncomplicated births were approached, as it was thought that these mothers would be the more candid about their smoking habits while pregnant. Thus any deliveries that were complicated were automatically excluded from the study to avoid any harm. Another problem was verification of smoking rates, self-reporting rates are likely to be underreported. This was thought to be mitigated by asking the mothers after giving birth.

This questionnaire is a suitable tool for collecting views on smoking cessation in women who smoke during pregnancy. This survey shows that the barriers to uptake of smoking cessation services for pregnant women in Cwm Taf are complex and reflect those common to the UK. The main barriers are low education and socioeconomic status, access to family support and effective tobacco replacement strategies. Pregnant smokers are thus unaware of the benefit this support provides to aid their attempts to quit. Women responded to these barriers by reducing their smoking (self-reported) rather than stopping altogether.

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