

Preconception care: who needs it, who wants it, and how should it be provided?

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SUMMARY

Background. Preconception care (PC) aims to identify and reduce a number of modifiable factors that can adversely affect pregnancy outcome.

Aim. To ascertain both knowledge of and attitudes towards PC among members of primary health care teams (PHCTs) and registered women of childbearing age in a representative sample of general practices in Harrow.

Method. A questionnaire survey was conducted in a randomly selected group of nine general practices in the London borough of Harrow. Subjects included all relevant health professionals and female patients of childbearing age registered with the practices.

Results. A total of 62/88 (70.5%) health professionals and 811 women (1 in 20 of the entire target population) completed the questionnaires. Nurses' knowledge matched that of the doctors, except in the area of genetics. Over 85% of all health professionals believed that PC could be of benefit to both mother and baby. Women were generally well informed; Asian women, those born outside the UK, those who had never been pregnant, and those who had not undertaken education beyond the age of 18 years were significantly less well informed. Health professionals considered PC to be best delivered opportunistically by nurses, and this method appeared to be acceptable to most female patients of childbearing age, although it was significantly less acceptable among Asians.

Conclusion. Among health professionals and women of childbearing age, there is generally a good level of knowledge of PC, although certain groups are less well informed than others and could benefit from a targeted education approach. Widespread agreement that PC is worthwhile was found among PHCT members, but this view is less strongly held by the female public, with the acceptability of providing PC opportunistically differing significantly between ethnic groups.

Keywords: preconception care; primary health care team; questionnaire survey.

Introduction

IN 1991, the House of Commons Health Committee produced a report¹ which proposed that preconception care be 'identified as a key area' of health care. The Health Education Authority launched a campaign in 1995 to increase awareness and knowledge of folic acid among health professionals and the public. However, this campaign remains narrowly focused upon the issue of neural tube defect prevention and does not address other

important factors in preconceptual health, including diet, smoking, alcohol, drugs, rubella, and genetic disorders, each of which can adversely affect pregnancy outcome.²⁻⁶

The aim of preconception care (PC) is to ensure that women are 'in an optimal state of physical and emotional health at the onset of pregnancy'.⁷ In the United States (US), PC has been given prominence by being included in the 'National Health Promotion and Disease Prevention Objectives for the year 2000',⁸ the equivalent of our *Health of the Nation* document.⁹ In the United Kingdom (UK), despite the existence of a few dedicated hospital PC clinics serving the needs of high-risk couples, there has been little concerted development of PC services in primary care.

A concern sometimes voiced is that PC fails to serve many couples, as one third of pregnancies are unplanned.¹⁰ Nevertheless, focusing PC upon the remaining two thirds who generally plan a pregnancy could have substantial health benefits.

Improving the outcome of pregnancy through PC comprises two component actions. The first is to impart relevant information to women who may become pregnant and to their partners, thereby improving knowledge. The second is to modify individual behaviour based on the knowledge so gained. This study addresses the first issue: assessment of knowledge among both women and health professionals. It also seeks to gauge the attitude of the two groups towards PC.

Method

All 42 general practices in the borough of Harrow in north-west London were stratified according to the number of partners (1, 2, 3 or 4, and ≥ 5), fundholding, and training status. Deprivation was not a relevant stratifying parameter as no practices in Harrow qualify for deprivation payments. After stratification, nine representative practices were selected randomly using random number tables. One (single-handed) practice of those selected refused to participate and was replaced by another randomly selected practice from the same stratification group. All principals in the nine selected practices were sent a letter outlining the study.

Two different, self-completed, anonymized questionnaires were compiled, one for use by female patients (questionnaire 1) and the other for use by health professionals (questionnaire 2). Both questionnaires enquired about knowledge of the effects of alcohol, diet, and rubella upon pregnancy, and elicited attitudes towards PC. Most questions were created specifically for this study. They differed in that questionnaire 1 enquired into patients' understanding of the pregnancy test and also requested standard demographic details.^{11,12} Questionnaire 2 elicited the views of health professionals about the importance of delivering PC to specific patient groups and included a section that assessed knowledge of basic Mendelian genetics. Both questionnaires were piloted in two practices in a nearby health authority.

To survey the knowledge and attitudes of women aged 16 to 48 years, general practice reception staff were asked to offer questionnaire 1 to any woman in this age group registered with the practice who attended the surgery during the study period, either as a patient or as a patient's relative. Questionnaire 2 was

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given to all practice nurses, community midwives, health visitors, and general practitioners (GPs) who worked in the nine participating practices.

The study was approved by Harrow Research Ethics Committee.

Analytical techniques

Data were analysed using the SPSS program. Logistic regression analysis for non-parametric data was used to establish which patient characteristics were independently associated with poor knowledge; odds ratios were calculated by taking the exponential of the beta-values. The chi-squared test was used to analyse differences in responder characteristics, and the significance of differences in knowledge between doctors and nurses was assessed using the Student *t*-test for parametric data and the Kruskal-Wallis test for non-parametric data. Questions relating to attitude produced ranked data, which was analysed using the Mann-Whitney test for ordinal data.

Results

Subjects

Patients. A total of 811 female patients responded to the questionnaire: 5.5% of all registered women in the target age group. Tables 1 and 2 illustrate the demographic details of the responders, Table 2 showing that members of the study sample were highly representative of the local population, except in having received more formal education.

Health professionals. The characteristics of the nine participating practices and the response rate of the health professionals are shown in Table 3.

Knowledge

Patients. Questionnaire 1 contained 21 individual questions that

assessed knowledge in the areas of folic acid, rubella, alcohol, and use of the pregnancy test. Each correct answer was allocated one mark. Logistic regression analysis, performed to determine which factors were most predictive of poor knowledge, was based upon only those responders who answered at least one question from each of the four sections, amounting to 544/811 (67%) patients. Individuals in the lowest 25th centile (mean score = 11.9, *n* = 160) were compared with the rest (mean score = 17.2, *n* = 384). A summary of the results is shown in Table 4.

In addition, women aged under 20 years were much more likely (odds ratio = 5.3, CI = 1.6–16.7) to be poorly informed about the value of folic acid than those aged 25 to 29 years. Some 15% of women believed incorrectly that folic acid reduces the likelihood of a Down's syndrome baby.

Table 1. Demographic details of patient responders.

	<i>n</i> = 811	%
Age (years)		
16–19	34	4.3
20–24	90	11.1
25–29	167	20.6
30–34	214	26.9
35 and over	290	35.7
Missing data	16	2
Mean (SD)	32.2 (7.3)	
Stage in reproductive cycle at time of study		
Trying to conceive	37	4.6
Pregnant	91	11.2
'Postnatal' (≤6 months after delivery)	21	2.6
Not trying for pregnancy	602	74.2
Missing data	60	7.4
≥ 1 previous pregnancy	629	75.5

Table 2. Representativeness of patient responders (*n* = 811).

	Percentages of all responders (<i>n</i>)	Outer London* (%)	England* (%)
Home ownership			
Owner occupied	74.8 (607)	78.6	57.0
Rented privately	12.5 (101)	10.3	15.2
Rented other	9.4 (76)	11.1	27.9
Missing data	3.3 (27)		
Self-reported ethnicity			
White	67.4 (537)	73.6	93.8
Asian (Indian/Pakistani)	27.3 (198)	21.3	3.04
Black (African/Caribbean)	4.0 (34)	3.9	1.9
Chinese	1.3 (12)	1.2	0.7
Mixed race	0.004 (3)		
Missing data	3.5 (29)		
Country of birth			
UK	66.2 (537)	–	92.5
Outside the UK	31.0 (251)	–	7.5
Missing data	2.8 (23)		
Education			
Educated beyond age of 18 years	39.3 (319)	15.1 [†]	13.5 [†]
Currently at college or university	6.2 (50)		
Completed between the age of 17 and 18 years	25.5 (207)		
Completed by age of 16 years	24.5 (199)		
Currently at school	1.0 (8)		
Missing data	3.5 (28)		

*Data from 1991 census. [†]Population aged 18 years and over who possess a higher qualification, e.g. diploma or degree.

Table 3. Characteristics of the nine participating practices.

Number of principals	Non-training, fundholding	Non-training, non-fundholding	Training, fundholding	Training, non-fundholding
1	1	1		
2	1	2		
3 or 4		1	1	
5 or more	1			1
Total	3	4	1	1
Response rate of eligible doctors:	27/34 (79.4%)			
Response rate of eligible nurses:	33/54 (61.1%)			

(Status of two health professional responders unknown.)

Table 4. Knowledge of patient responders.

Average score of all responders	74%
Percentage of responders included in logistic regression analysis to identify predictors of low overall score (i.e. those answering \geq one question from all four sections)	67% (544/811)
Responder characteristics associated with low overall score* [expressed as odds ratio (OR) with 95% confidence intervals]	
Born outside the UK versus born in the UK	OR = 4.3 (2.2–8.3)
No previous pregnancy versus past pregnancy	OR = 3.6 (1.8–7.2)
Asian ethnic group versus white ethnic group	OR = 3.4 (1.7–6.6)
No higher education versus higher education	OR = 2.1 (1.1–3.4)
Overall awareness of folic acid	89% (697/783)
Responder characteristics associated with lack of awareness of folic acid (expressed as OR with 95% confidence intervals)	
No previous pregnancy versus past pregnancy	OR = 3.7 (1.8–7.7)
Born outside the UK versus born in the UK	OR = 3.2 (1.5–7.1)
No higher education versus higher education	OR = 2.6 (1.3–4.8)
Percentage correctly identifying timing and benefits of folic acid	45% (312/694)
Percentage knowing recommended upper limit of alcohol consumption ¹³	90% (717/804)
Percentage who would perform pregnancy test at appropriate time	85% (680/803)
Percentage who both knew of signs of rubella infection and necessity for antibody titres before every pregnancy	46% (338/729)

*Individuals in the lowest 25th centile by knowledge score.

Table 5. Acceptability to White and Asian women of discussing PC opportunistically.

Reason for consulting	White (n = 519)	Asian (n = 186)	χ^2 (df = 1)
Contraception	94%	83%	21.2 (P < 0.0001)
Smear	51%	48%	NS
Common cold	9%	7%	NS

Health professionals. Overall, responders were well informed, achieving an average score of 77% (12.3 out of a possible total of 16). There was no significant difference between the overall scores of doctors (mean = 12.74, SD = 2.10) and nurses (mean = 12.00, SD = 2.10) (*t*-test). Altogether, 89% correctly identified the dose, timing, and natural food sources rich in folic acid. Certain questions were answered particularly poorly; more than a fifth of doctors stated that they would recommend nicotine gum and patches during pregnancy in order to help a pregnant woman give up smoking despite the *British National Formulary* caution that these products are contraindicated in pregnancy. Nurses scored significantly lower in the genetics section than doctors (mean = 2.88, SD = 1.11 versus m = 3.89, SD = 1.28; Kruskal–Wallis, $P < 0.01$).

Attitude to the importance and delivery of PC

Fewer than 40% of women considered PC to be essential, and more than 10% believed it to be of no importance. In contrast, 86% of doctors and 95% of nurses believed that PC could reduce both maternal and neonatal mortality and morbidity and enhance maternal psychological well-being. Asian women were more likely than their white counterparts to rate PC as essential ($\chi^2 = 5.70$, df = 1, $P = 0.02$). Women who had never been pregnant were more likely to consider PC essential than those who had had experience of pregnancy ($\chi^2 = 16.2$, df = 1, $P < 0.001$).

Women were asked if they would find it acceptable to be offered PC opportunistically if visiting the practice for one of three different sorts of reasons. The results are shown in Table 5. In each of the scenarios, acceptability was substantially lower the less closely the main reason for consulting related to pregnancy. In addition, Asian women were less willing to receive PC than their white counterparts when consulting for contraception.

Among health professionals, PC carried out opportunistically by practice nurses or health visitors was widely considered to be the most effective method of delivery. Health professionals' perceptions of the importance of providing PC to specific patient groups were assessed by means of a five-point Likert scale, with 1 signifying 'not at all important' and 5 signifying 'essential'. Responses were analysed using the Mann–Whitney test for ordinal data. The overall average score awarded to high-risk women,

namely those with diabetes and epilepsy, was greater than 4.5/5. Nurses rated the importance of providing PC to lower-risk women, namely smokers ($P < 0.03$), Afro-Caribbeans ($P < 0.05$), and healthy Caucasians ($P < 0.001$) significantly more highly than doctors. Worryingly, PC was not considered essential among nine doctors in the hypothetical case of a diabetic woman, and by seven doctors and six nurses in the case of an epileptic woman.

Discussion

This is the first published UK study to investigate both knowledge and attitudes towards PC in primary care. Patients in the study sample were highly representative of the local population, except that they were better educated (a finding not unusual in questionnaire-based studies). Table 2 reveals that the Harrow population differs from the population of England and Wales mainly in its high proportion of Asian residents and in its relative affluence as judged by home ownership. Nevertheless, this study is likely to be pertinent to many areas in the UK with a large Asian population.

Responders were generally well informed. Previous pregnancy, place of birth, and ethnicity were the most important determinants of knowledge of PC issues; a less influential factor was age. Comparisons with previous studies can only be made for questions relating to folic acid.¹³ Overall, almost 90% (683/783) of responders in this study had heard of folic acid and 50% (403/811) knew the recommended time during which it should be taken.¹⁴ Only 70% (23/33) of women aged under 20 years were aware of folic acid.

The finding that women in this study were so much better informed about folic acid than in previous reports may reflect secular trends and the recent emphasis placed on this issue by the Department of Health.¹⁵ However, other recent studies indicate that, although awareness of the importance of folic acid may have risen, the majority of women still fail to take the vitamin supplement preconceptionally.^{16,17}

Knowledge among health professionals was found to be generally good, with nurses enthusiastic at the prospect of taking on the role of PC, although they probably require a better understanding of Mendelian genetics. There is agreement among health professionals that the most effective method of delivering PC is opportunistically. However, most women would not find it acceptable to receive this advice when consulting with a non-gynaecological problem. As only 40% of all women surveyed considered PC essential, the majority are unlikely to seek this form of care spontaneously. When providing opportunistic care of any kind, the expectations of patients must be borne in mind, otherwise one risks alienating those who may gain most from the service. The sentiments of one woman who commented that 'knowledge is power', and those of another who wrote that 'knowledge is peace of mind', are by no means universal, and diversity of patient attitude needs to be respected when providing PC in general practice.

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