A survey of paramenstrual complaints by covert and by overt methods

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SUMMARY. A covert method of assessing perception of health in relation to menstruation was applied prospectively to a group of women aged 20 to 40 years. Of the 1386 randomly selected women contacted, 838 (60%) provided information for the full study period of six weeks and 608 of these respondents menstruated during that time. A clear excess of women demonstrated premenstrual deterioration in perceived health. This rose to a peak at the onset of menstruation and subsided rapidly during menstruation, thus reflecting the conventionally defined pattern of the premenstrual syndrome.

When, on completion of prospective recording, the same women were asked to return an overt and retrospective assessment of paramenstrual symptoms, the overall pattern of results was similar but, for individual women, there was little correspondence between similar data obtained by the two different methods.

Introduction

Much has been written about health complaints arising in temporal association with phases of the menstrual cycle and about the more explicitly (although pragmatically) defined premenstrual syndrome.[1-3] It has recently been shown[4] that most general practitioners accept this as a real clinical association despite continuing scientific uncertainty.[5]

Typical previous studies[6-9] have produced widely different estimates of prevalence, reflecting important problems of method. The central problem is that, in order to demonstrate a temporal association, information about the timing of menstruation must be obtained and, if this is openly sought, an obvious bias is introduced. A second problem is that the information collected must span a considerable period of time — including at least one complete cycle — and detailed prospective data are likely to be obtained only from highly selected and well-motivated women. Previous prospective studies have therefore tended to be of small groups of nurses, midwives, students and other professional groups. On the other hand, compliance is easier to obtain in retrospective studies and most of the larger and more representative studies have therefore used this method, despite the evidence that information based on recollection may be biased and unreliable.[10] Finally, although the use of symptom inventories, such as the menstrual distress questionnaire,[11] may be useful for clinical purposes, explicit questioning may introduce an unacceptable level of bias in epidemiological studies, by encouraging over-reporting.

The aims of this study were (1) to obtain an estimate of the prevalence of menstrually-related complaints based on a large and representative sample of women and using methods which were not biased toward the reporting of menstrually-related symptoms, and (2) to demonstrate that, in the same population of women, the reported prevalence of menstrually-related symptoms is greatly dependent upon the method of inquiry.

A large prospective 'covert' survey of a representative sample of women aged 20 to 40 years was carried out and the results of this were compared with the results obtained from the same women when retrospective, explicit methods of questioning were used.

Method

Instruments

Prospective. A daily health record was constructed which identified major functional changes without directing attention to menstruation or toward specific symptoms and was simple and speedy to complete (Figure 1). 'Menstruation' was masked by being associated with various distractors intended to imply normal variation in bodily functions. Women were asked to complete this over six weeks so that at least one menstrual period was likely to be included.

Retrospective. Information relating to menstruation (including the taking of oral contraceptives) was obtained by a separate retrospective questionnaire. This was applied immediately after completion of the prospective phase to avoid interfering with the covert nature of the daily health record while allowing the same cycle to be covered by both instruments. The retrospective questionnaire explicitly asked the women to indicate which of a list of symptoms (derived primarily from that used by van Keep[12]) they had experienced before, during and after their last period.

The list used in a preliminary study was modified for the main study by including only those symptoms mentioned by 15% or more of the preliminary study sample. Headache was omitted from the final questionnaire (Figure 2) for the reasons stated later.

Preliminary studies

The ease of comprehension and validity of the daily health record were assessed by interviewing 12 female university employees and 25 meat processing workers who had tested the instrument for up to 14 days. Very little modification was required and a pilot study was then carried out on a randomly selected sample of 150 women aged 20 to 40 years, using both the daily health record (testing compliance over the full period of six weeks) and the retrospective questionnaire.

Main study

The study was carried out in five urban general practices with a total of over 39 000 patients and with the agreement of the 23 doctors. A 1 in 4 random sample was selected from a total population of 6500 women aged 20 to 40 years, excluding obviously foreign surnames to avoid difficulties in communica-

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Daily health record Week ☐

(If you are in doubt about the instructions which follow please look again at the examples given with our initial letter.)

At about the same time each day please

First, mark how you have been in the past 24 hours:
No difficulty — put '0' in the box
Mild difficulty — put '1' in the box
Severe difficulty — put '2' in the box

	M	Tu	W	Th	F	S	Su
General health							
Sleep							
Ability to cope with day to day routine							
Mood							
Ability to make decisions about day to day matters							
Energy							

Next, if you had any of the following in the last 24 hours please mark with a tick (✓). If you had anything else please use the blank spaces to say what it was and tick (✓) the day:

	M	Tu	W	Th	F	S	Su
Poor appetite							
Constipation							
Head cold							
Menstrual bleeding							
Headache							

Please note: If there is anything else you would like to say about your health please write this overleaf.

Figure 1. *The daily health record.*

tion. Using only postal contact, the selected women were asked to complete the daily health record for six weeks and, later, the retrospective questionnaire. Non-responders were sent two further requests. Of the 1386 women who were contacted 838 (60%) completed the daily health record for a full six weeks.

A 1 in 2.5 random sample of the 548 non-responders to the request to complete the daily health record (219 women) were asked to complete the retrospective questionnaire and 144 (66%) did so. In general these women reported a similar level of premenstrual complaints to those who responded to the request to complete the daily health record.

The analyses which follow are based on the 608 (73%) out of 838 respondents whose record included at least one complete episode of menstruation. The comparison of overt and covert methods of questioning is based on the 530 women from this group who also completed the retrospective questionnaire.

Correspondence between prospective and retrospective surveys

Although the two surveys were carried out in the same population of women and referred to the same time interval for each woman, the information requested could not be exactly comparable. There were two potential causes of differences in results: retrospective versus prospective reporting, and overt versus covert questioning.

However, five of the functional areas on the daily health record (general health, sleep, mood, decision making and energy) were covered by comparable specific questions on the retrospective questionnaire. In addition, 'headache' was included as an explicit item on the daily health record (because it was sufficiently non-specific to avoid affecting the covert design) but omitted from the list of symptoms given on the retrospective ques-

We would like to ask you a few questions about your 'periods' and, particularly, your **last** one.

First, are you on the pill? (please tick ✓ if you are) Yes ☐

Secondly, have you consulted a doctor during the past year about any trouble with your periods? (please tick ✓ if you have) Yes ☐

The remaining questions apply only to your **last** period.

Please tick ✓ in the boxes below if any of the following applied **before** (ie, within about 5 days) your last period, and/or **during** your last period, and/or **after** (ie, within about 5 days) your last period.

	Before	During	After
Breast discomfort	☐	☐	☐
Clumsiness, proneness to accidents	☐	☐	☐
Difficulty in concentrating and remembering things	☐	☐	☐
Difficulty in sleeping	☐	☐	☐
General 'out of sorts' feeling	☐	☐	☐
Indecision, inefficiency	☐	☐	☐
Moodiness, irritability, aggressiveness	☐	☐	☐
Painful, heavy legs	☐	☐	☐
Pains in the back	☐	☐	☐
Skin problems (eg irritations, blotchiness)	☐	☐	☐
Sleepiness, lethargy	☐	☐	☐
Stomach ache or cramps	☐	☐	☐
Tearfulness, depression	☐	☐	☐
Tenseness, general uneasiness	☐	☐	☐
Tiredness, general weakness	☐	☐	☐
Weight gain, puffiness	☐	☐	☐

Please describe below any other changes you noted which we did not list above:

Before period (ie within about 5 days)	During period	After period (ie within about 5 days)

If there are any other comments you would like to make about your last period, please do so here:

We appreciate your taking time to help us with this questionnaire.

Figure 2. *The retrospective questionnaire.*

tionnaire (although it was known to be a frequently reported paramenstrual symptom in previous studies). This was to allow some comparison of the effect of explicit prospective questioning as against non-explicit retrospective questioning — the obverse of the main design of the study.

Results

There were no important differences between the results of the preliminary study and the main study. In addition, a detailed comparison in the pilot study of the medical records of respondents and non-respondents revealed no significant differences in consultation, treatment or referral patterns.

Comparison of prospective and retrospective surveys

Using the covert prospective method 547 women (90%) of the group of 608 reported at least one symptom in the five days preceding menstruation, 92% were symptomatic during periods and only 78% during the first five postmenstrual days. For comparable intervals reported by the same women on the retrospective questionnaire the figures were 93%, 87% and 28% respectively.

Daily health record

Figure 3 shows the percentage of women who complained of difficulty on the daily health record in each of the areas of interest. In general, the women appeared to feel most healthy postmenstrually and least healthy during menstruation, particularly on the first day. There are interesting contrasts in the baseline prevalence of specific complaints — for example, the minimum level for complaints of lack of energy was over 30% of women whereas less than one-tenth complained of difficulties in decision making. However, the patterns of the graphs are (with the exception of 'sleep') remarkably similar. In each case, a clear excess of women exhibit premenstrual deterioration in function, and this rises to a peak at the onset of menstruation and subsides quite rapidly during menstruation, in accordance with the conventional definition of premenstrual syndome.[2] Approximately 10–20% of women form this excess, depending upon the complaint. On the other hand, sleep disturbance (not generally regarded as a symptom of premenstrual syndrome) follows a different pattern showing improvement during menstruation.

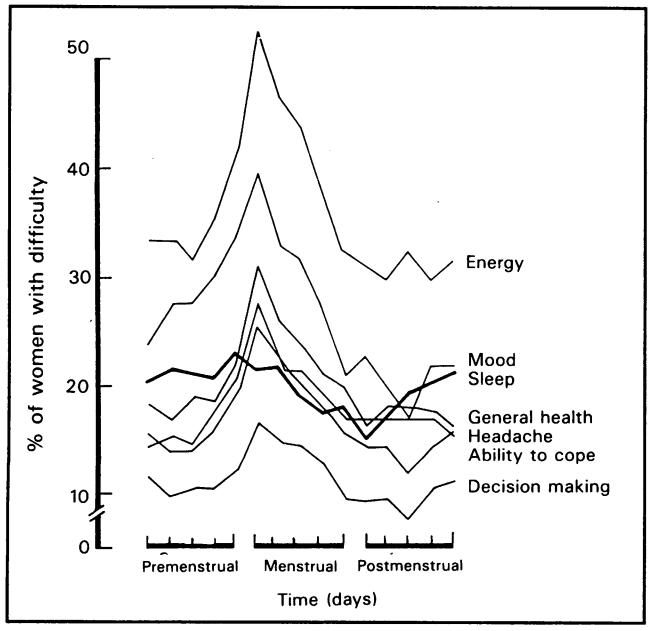

Figure 3. *Percentage of women complaining of difficulty on the daily health record (n = 608).*

Table 1. Percentage of women who retrospectively reported paramenstrual symptoms ($n = 530$).

Symptom	% of women reporting symptoms		
	Pre-menstrual	Menstrual	Post-menstrual
Moodiness, irritability, aggressiveness	65	37	3
Weight gain, puffiness	60	26	4
Breast discomfort	54	21	4
General 'out of sorts' feeling	50	42	6
Tearfulness, depression	43	22	4
Stomach ache or cramps	41	55	4
Tenseness, general uneasiness	36	21	3
Tiredness, general weakness	35	46	9
Skin problems	33	19	8
Pains in the back	32	33	2
Sleepiness, lethargy	27	30	5
Difficulty in concentrating and remembering	22	18	3
Clumsiness, proneness to accidents	21	14	1
Difficulty in sleeping	19	14	3
Indecision, inefficiency	17	13	2
Painful, heavy legs	17	20	1

Retrospective questionnaire

Table 1 demonstrates the temporal relationships of the more specific symptoms listed in the retrospective questionnaire in order of their frequency of occurrence during the premenstrual phase. In general, 82% of women complained of one or more symptoms which occurred exclusively during the five days preceding menstruation.

Correspondence between prospective and retrospective surveys

Overall, 196 (37%) of the 530 women completing both methods of questioning reported at least one similar premenstrual complaint in both surveys. However, there was a striking lack of concordance for comparable individual items of premenstrual data (Figure 4). In general, the complainants identified by each method belong to two different subgroups of the sample. There are also differences in the relative size of the complainant subgroups.

Premenstrual headache

There was a considerable discrepancy in the results obtained using the different methods of questioning. In the pilot study 22% of women complained of premenstrual headache where this was included in the list of symptoms explicitly sought in the retrospective questionnaire. This is comparable to the prevalence of premenstrual headache detected in other similar retrospective studies.[12] When this symptom was omitted from the explicit list for the main study, premenstrual headache was reported spontaneously by only 6% of respondents to the retrospective questionnaire. Conversely, when it was explicitly sought in the daily health record 20% of respondents reported premenstrual headache.

Discussion

The results for premenstrual headache suggest that, as might be expected, more women complain when there is an explicit prompt. However, where the questions had been put in a similar way (Figure 4) there were still differences in response which are more likely to be due to timing of questioning (retrospective ver-

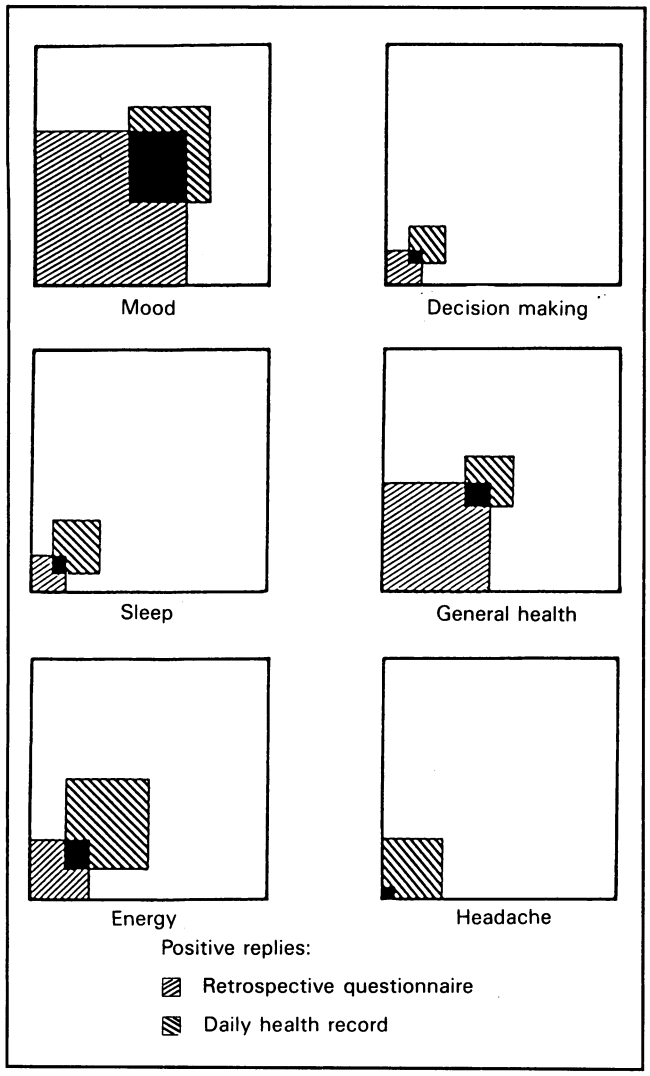

Figure 4. *Prospective and retrospective reporting of premenstrual complaints by 530 women.*

sus prospective). In general the level of complaint was higher in response to the retrospective questionnaire (especially for mood and general health). The degree of non-concordance is surprising. It was expected that the majority of women who complained concurrently would also complain in retrospect. One possibility is that, despite the clear instructions to the contrary, women took into account their global experience of menstruation in completing the retrospective questionnaire rather than referring specifically to the most recent period. Whatever the explanation, it is clear that perception of premenstrual complaints depends greatly upon both how and when the questions are asked.

Slade[13] recently reported a similarly 'covert' prospective study of menstrually-related symptoms, which used somewhat different methods and was based on the response of 118 (39%) of an initial sample of 302 student and pupil nurses. She found significant symptom peaks in the premenstrual and menstrual phases for symptoms related to 'pain' and 'water retention', but psychological symptoms were not so clearly present. Slade concluded that although a very small percentage of women may suffer from a specific clinical syndrome it is not clear whether 'higher levels of negative emotion premenstrually or menstrually are a genuine feature of normal female experience'. However, this study has provided evidence of relatively widespread premenstrual and menstrual change in a larger and more representative sample of women and using a similarly covert method. These results tend to support the conventional view that cyclical psychological change is a relatively common phenomenon.

This excess of dysfunction during premenstrual and menstrual phases is a real problem whether it be biological or sociocultural in origin. An associated survey of general practitioners[4] illustrates the need for an eclectic but more rigorous aetiological classification which might help promote rational and effective solutions.

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Obesity: nature or nurture?

This study examined the contributions of genetic factors and the family environment to human fatness in a sample of 540 adult Danish adoptees There was a strong relation between the weight class of the adoptees and the body–mass index of their biologic parents. There was no relation between the weight class of the adoptees and the body–mass index of their adoptive parents. The relation between biologic parents and adoptees was present across the whole range of body fatness — from very thin to very fat. It can be concluded that genetic influences have an important role in determining human fatness in adults, whereas the family environment alone has no apparent effect.

Source: Stunkard AJ, Sorensen TIA, Hanis C, *et al.* An adoption study of human obesity. *N Engl J Med* 1986; **314:** 193-198.