The European Journal of Contraception and Reproductive Health Care, 2014; 19: 266–275

A survey on Swiss women's preferred menstrual/withdrawal bleeding pattern over different phases of reproductive life and with use of hormonal contraception

Gabriele S. Merki-Feld[*,#], Nicole Breitschmid[*,#], Burkhardt Seifert[†] and Martina Kreft[*]

[*]Clinic for Reproductive Endocrinology, Department of Gynaecology and Obstetrics, University Hospital Zürich, Switzerland, and [†]Division of Biostatistics, ISPM, University of Zürich, Zürich, Switzerland

ABSTRACT

Background Today, options for bleeding-free lifestyle are actively promoted by the media, the pharmaceutical industry and health specialists. With regard to contraceptive counselling it is important to find out what women really want.

Methods In the present study we collected information on women's attitudes towards monthly bleeding and preferences, if they could have the option to modify their individual bleeding pattern. Furthermore we evaluated the preferences with use of combined hormonal contraceptives (CHCs). Switzerland has never been surveyed before with regard to these issues. Questionnaires were distributed in our family planning clinic and two outdoor offices to clients aged 15 to 19 years, 25 to 34 years, and 45 to 49 years.

Results Of 530 questionnaires, 292 were eligible for analysis. Around 50 of the participants would appreciate having fewer menstrual period-related symptoms. Some 37% preferred experiencing a monthly bleeding; 32% opted for every 2 to 6 months; and 29%, for no bleeding at all. This heterogeneous distribution did not differ between clients with and without menstrual symptoms. With regard to CHC use, predictable bleeding was rated as very positive and breakthrough bleeding as negative.

Conclusion Contraceptive counsellors should be aware that women's wishes differ widely. Predictability of bleeding seems to be more important to them than postponing it.

KEYWORDS Monthly bleeding; Irregular bleeding; Extended cycle; Hormonal contraceptives; Women's preferences

INTRODUCTION

Early menarche, late menopause and a small number of pregnancies today are reasons, why women experience more menstrual bleedings during their lifespan than in earlier centuries[1]. One consequence of longer fertility is the necessity of preventing pregnancy for more years. While some women consider that their menstruation is a discomfort, others are not bothered. Acceptance

[#]Both authors contributed equally to the paper.

Correspondence: G. S. Merki-Feld, Clinic for Reproductive Endocrinology, Department of Gynaecology and Obstetrics, University Hospital, Frauenklinikstrasse 10, CH - 8091 Zürich, Switzerland. Tel: + 41 44 2555009. Fax: + 41 44 2554376. E-mail: gabriele.merki@usz.ch

DOI: 10.3109/13625187.2014.907398

of menstrual periods varies between cultures and age groups, and may change over time[2–4]. It is assumed that mainly women who suffer from menstruation-associated symptoms demand to experience fewer bleeding episodes[5,6]. Also for women with busy and active lifestyles such a reduction may be convenient[1]. Media influence women's attitudes towards menstrual bleeding[7]. During the last two decades the pharmaceutical industry strongly promoted the development and use of preparations allowing postponement or suppression of monthly bleeding episodes. With combined hormonal contraceptives (CHCs) there is a trend towards shortening or even leaving out the hormone-free interval in newer pill preparations to avoid withdrawal bleeding (long cycle)[8]. Long-cycle preparations are licensed in the US but not in Western Europe yet. A bleeding-free lifestyle is what advertisements in western societies strongly recommend to the modern woman, promising more flexibility and well-being. However, is a bleeding-free life what women want, especially those who experience no bleeding-associated symptoms? Whereas attitudes towards menstruation have been thoroughly assessed during recent years among US female students, and in South American and Asian countries, there is a lack of up-to-date information concerning the views in that respect of women in Central-European countries[9–15]. Most newer studies did not differentiate between attitudes of women with menstrual period-associated conditions, heavy bleeding and long bleeding, from those of women without such symptoms. Only a few recent surveys split the study population into age groups to reflect different attitudes over the phases of reproductive life.

The present survey gathered information on women's preferences with regard to menstrual bleeding and to CHC-driven fictive bleeding patterns in a Central-European country in which these issues have never been surveyed before. We aimed to study women with similar cultural and socio-economic backgrounds. Because preferences potentially vary depending on the woman's individual bleeding pattern and life phase, we performed separate analyses of women with menstrual discomfort or heavy/prolonged bleeding and of the different age groups. A decade after the release of surveys in Germany, the UK and Denmark[10,11,14], attitudes among very young women may already have changed. Therefore we compared our findings with those on record, and discuss possible causes for the differences.

MATERIALS AND METHODS

We interviewed a convenience sample of women of childbearing age in the canton of Zürich, Switzerland. Around a third of the German-speaking population live in this area, and their cultural background is very similar to that of German and Austrian people.

The menstrual period is subject to variations over a woman's life. These variations can modify bleeding preferences and can be associated with more or less discomfort, especially in teenagers and perimenopausal women; we therefore classified women into three age groups: group 1: 15 to 19 years, group 2: 25 to 34 years, and group 3: 45 to 49 years. We elected to assess a study sample in which only certain age groups between menarche and menopause would be represented, because we anticipated that a break between two successive age groups would make differences appear more clearly. We aimed to include at least 100 women aged 25 to 34 years and 50 women in each of the other two groups whose age range covered only five years. Information sheets for our survey were distributed in the Family Planning Clinic of the University Hospital of Zürich and two outlying gynaecological offices close to Zürich. If clients orally agreed to participate, an anonymised multiple-choice questionnaire was delivered that could be completed immediately in the office or later, in which case it was returned by post. With regard to the cultural and socio-economic background the survey gathered information on nationality, domicile and education (Table 1). In addition data were collected on the clients' natural menstrual bleedings: duration and intensity (classifications in Table 2). A further question addressed menstruation-associated symptoms (MASs), which included any symptom ranging from headache or breast-tenderness to libido problems, mood disturbance or irritability. In the next part of our questionnaire women were asked if they currently used a combined oral contraceptive (COC) and what bleeding pattern they would prefer, if they could manipulate their bleeding. To answer this question there were several options related to the reduction of the discomfort, the number of bleeding days or the bleeding intensity, and the favoured number of cycles per year. Subsequently women were asked if they would be willing to use a CHC to achieve the desired bleeding pattern and if they would accept an increase of the hormonal dosage. Finally we

Table 1 Socio-demographic characteristics of respondents split into age groups, *n* (%).

	Age group 1 15–19 years (n = 118)	*Age group 2 25–34 years (n = 117)*	*Age group 3 45–49 years (n = 57)*	*Total (N = 292)*
Where residing				
Urban area	56 (48)	75 (30)	24 (42)	155 (53)
Rural area	55 (47)	35 (65)	31 (54)	121 (41)
Missing answer	7 (6)	7 (6)	2 (4)	16 (6)
Education				
Basic education	8 (7)	13 (11)	6 (11)	27 (9)
High school	81 (69)	3 (3)	2 (4)	86 (30)
Apprenticeship	26 (22)	31 (27)	22 (39)	79 (27)
University	3 (3)	65 (56)	22 (39)	90 (31)
Missing answer	0 (0)	5 (4)	5 (9)	10 (3)
Pregnancy				
Yes	0 (0)	14 (12)	0 (0)	14 (5)
No	118 (100)	103 (88)	57 (100)	278 (95)
Menstrual bleeding in the last three months				
Yes	115 (98)	92 (79)	44 (77)	251 (86)
No	3 (3)	23 (20)	13 (23)	39 (13)
Missing answer	0 (0)	2 (2)	0 (0)	2 (1)

collected information on what women would consider a positive effect of CHCs on their menstrual period/withdrawal bleeding. The evaluation of anonymised questionnaires in our setting was approved by the regional ethical committee of the Kanton Zürich.

Table 2 Characteristics of the menstrual bleedings, *n* (%).

	Age group 1 15–19 years (n = 118)	*Age group 2 25–34 years (n = 117)*	*Age group 3 45–49 years (n = 57)*	*Total (N = 292)*
*Intensity of menstruation**[1,2,3]				
Light	14 (12)	29 (25)	6 (11)	49 (17)
Normal	85 (72)	67 (57)	30 (53)	182 (62)
Heavy	19 (16)	18 (15)	20 (35)	57 (20)
Missing answer	0 (0)	3 (3)	1 (2)	4 (1)
Menstrual discomfort				
Yes	67 (57)	56 (48)	29 (51)	152 (52)
No	51 (43)	58 (50)	26 (46)	135 (46)
Missing answer	0 (0)	3 (3)	2 (4)	5 (2)
Average duration of bleeding				
<3 d	12 (10)	24 (21)	6 (11)	42 (14)
3–5 d	75 (64)	68 (58)	36 (63)	179 (61)
>5 d	31 (26)	22 (19)	14 (25)	67 (23)
Missing answer	0 (0)	3 (3)	1 (2)	4 (1)

*Statistical significance: $p < 0.017$ (χ^2-test).
[1] Age group 1 vs. age group 2, $p = 0.016$.
[2]Age group 1 vs. age group 3, $p = 0.014$.
[3]Age group 2 vs. age group 3, $p = 0.012$.

Statistical analyses

Statistical analyses were performed using SPSS 17.0 software (SPSS Inc., Chicago IL). Answers are presented as % (*n*). Confidence intervals (CIs) were reported as 95% Wilson CIs. Differences between age groups, between women with different bleeding patterns and between COC users and nonusers were compared using the chi-squared test. Bonferroni correction was used to define statistical significance between the three age groups. For comparisons over all ages groups, p values ≤ 0.05 were considered statistically significant. For comparisons between two age groups a p value < 0.017 was significant.

RESULTS

Of the 530 distributed questionnaires, 292 were returned and eligible for analysis. Demographic characteristics of the respondents classified into three age groups are to be found in Table 1. The majority of respondents had monthly bleeding episodes and were not pregnant. Most (81%) were of Swiss or German nationality whereas 11% were born in other European countries; the remaining 8% were of still other descents. Data related to intensity of bleeding, duration of bleeding and MASs are mentioned in Table 2. Overall 37% of the participants reported to be users of a COC (group 1: 45%; group 2: 45%; group 3: 9%). Age groups differed significantly with regard to intensity of bleeding. More women in group 3 reported having a heavy bleeding in their natural cycle, whereas 72% of the adolescents (group 1) rated their bleeding as moderate. Among women aged 24 to 34 years the percentage with light bleeding was highest (25%). MASs were reported by 52% (CI: 47–58%) of the respondents. The relative frequency did not differ between age groups (CHC users 30%; $p < 0.005$). Around 60% (61%, CI: 55–66%) of the clients over all age groups had menstrual periods of three to five days duration. The number of women with short menstruations was twice as high in group 2 as in the other two groups, but this difference was not statistically significant. Sixteen percent of COC users stated that they experienced short withdrawal bleedings, while 67% reported bleeding episodes of three to five days.

Women's preferences with regard to quality and frequency of menstrual bleeding/ withdrawal bleeding

Preferences of respondents with regard to their bleeding episodes are mentioned in Table 3. Overall 48%

Table 3 How women want to modify their monthly bleeding, *n* (%).

	Age group 1 15–19 years (n = 118)	*Age group 2 24–34 years (n = 117)*	*Age group 3 45–49 years (n = 57)*	*Total (N = 292)*
Fewer menstrual symptoms[1]	63 (53)	58 (50)	19 (33)	140 (48)
Fewer bleeding days[2]	52 (44)	32 (28)	23 (40)	107 (37)
Less heavy bleeding[3]	29 (25)	17 (15)	19 (33)	65 (22)
Desired frequency of menstrual/ withdrawal bleeding[4]				
Every month	26 (22)	55 (49)	28 (49)	109 (37)
Every 2 months	28 (24)	15 (13)	7 (12)	50 (17)
Every 3 months	13 (11)	13 (12)	1 (2)	27 (9)
Every 6 months	6 (5)	7 (6)	3 (5)	16 (6)
No bleeding	45 (38)	23 (20)	18 (32)	86 (30)

Statistical significance: $p < 0.017$ (χ^2-test).

[1]Age group 1 vs. age group 2, $p = 0.060$; age group 2 vs. age group 3, $p = 0.039$; age group 1 vs. age group 3, $p = 0.014$.

[2]Age group 1 vs. age group 2, $p = 0.001$; age group 2 vs. age group 3, $p = 0.090$; age group 1 vs. age group 3, $p = 0.640$.

[3]Age group 1 vs. age group 2, $p = 0.056$; age group 2 vs. age group 3, $p = 0.004$; age group 1 vs. age group 3, $p = 0.224$.

[4]Age group 1 vs. age group 2, $p = 0.001$; age group 2 vs. age group 3, $p = 0.17$; age group 1 vs. age group 3, $p = 0.003$.

(CI: 42–54%) of the participants (51% of the COC users) stated that they would appreciate experiencing fewer MASs. This statement was made significantly more frequently by women belonging to groups 1 and 2 (53% and 50%, respectively) than by those of group 3 (33%; $p = 0.04$ and $p = 0.01$, respectively; Table 3). Among respondents with long bleeding, heavy bleeding or MASs, the proportions of women desirous of experiencing fewer MASs were even higher (61%, 59%, and 76%, respectively).

Overall 37% (CI: 31–42%) of women reported, that they would prefer to have a shorter bleeding. In groups 1 and 3, this preference was stated significantly more often than in group 2 (Table 3). Among participants who did report long menstruations the proportion was even higher (56%). The wish to reduce bleeding intensity varies with age. It is greatest among women 45 to 50 years old; with a proportion of 33% it is significantly higher than in group 2 (Table 3). One third of all women indicated initially they had a heavy bleeding. Of these women, 61% wished to bleed less.

With regard to the frequency of menstrual/withdrawal bleeding more than one third (37%, CI: 32–42%) preferred a monthly bleeding and just under 30% (29%, CI: 25–35%) would chose to have no bleeding at all (Table 3). These statements differed significantly between both groups 1 and 2 ($p < 0.001$), and groups 1 and 3 ($p = 0.003$). In group 2 approximately half of the women wished for monthly bleedings/withdrawal bleedings and only 20% wanted not to bleed at all (Table 3). Interestingly the percentages of women preferring monthly bleedings or no bleeding at all did not differ between the total study sample and the women with MASs. In additional analyses we tested if the desired frequency of the bleeding episodes was related to heavy or prolonged bleeding. Of women with heavy bleeding 40% wanted monthly bleedings and 30% preferred not to bleed. Similar results were found among participants with long bleeding: 41% opted for cycles of normal duration and 33% for no bleeding at all.

Would women use a combined hormonal contraceptive to modify their bleeding according to their needs or to postpone menstruation?

More than half of the surveyed women would not use a CHC in order to regulate their bleeding episodes according to their preferences or to reduce MASs (Table 4). The proportion of respondents of group 1

Table 4 Responses to the question: 'Can you imagine using a combined pill (combined oral contraceptive, COC) to modify your bleeding according to your previously mentioned wishes?', *n* (%).

	Age group 1 15–19 years (n = 118)	*Age group 2 25–34 years (n = 117)*	*Age group 3 45–49 years (n = 57)*	*Total*
All women[1]				*N = 292*
Yes	66 (56)	49 (43)	12 (21)	127 (44)
No	52 (44)	65 (57)	44 (79)	161 (55)
Missing answers				4 (1)
Subgroup of not current COC users[2]	64 (36)	64 (36)	50 (28)	*N* = 178[3]
Yes	31 (48)	17 (27)	8 (16)	56 (31)
No	33 (52)	47 (73)	42 (84)	122 (68)
Subgroup of current COC users[2]	52 (50)	46 (45)	5 (5)	*N* = 103[3]
Yes	35 (67)	32 (65)	4 (80)	71 (69)
No	17 (33)	14 (35)	1 (20)	32 (31)

[1]Comparison between age groups (all respondents): age group 1 vs. age group 2, $p = 0.074$; age group 1 vs. age group 3, $p = 0.001$; age group 2 vs. age group 3, $p = 0.068$.
[2]Differences within age groups between current and not current pill users: age group 1, $p = 0.09$; age group 2, $p = 0.001$; age group 3, $p = 0.001$.
[3]Eleven answers to the question: 'Do you use a combined pill?' were missing.

who would not use a CHC differed significantly from that in group 3 ($p = 0.001$). Preferences of women not currently taking a COC did not differ from those expressed by the total study sample (Table 4). One option to postpone or avoid menstruation consists in switching to an extended- or a continuous-cycle regimen, respectively, but these are associated with an overall higher exposure to oestrogens and progestins. To the question whether they would agree to take a higher hormone dosage to achieve a bleeding pattern causing less discomfort or to avoid withdrawal bleeding, only 17% (CI: 13–21%) of the respondents answered affirmatively.

Effects of combined hormonal contraceptives on menstrual/withdrawal bleeding considered to be important

Less discomfort, fewer bleeding days, less heavy bleeding and bleeding on schedule were by far the most frequently cited preferences for effects of CHCs on menstrual/withdrawal bleeding (Table 5). Nearly all women (86%, CI: 83–90%) considered breakthrough bleeding as negative. Scheduled bleeding was regarded as positive by 85% (CI: 82–89%) of the respondents.

DISCUSSION

With this study we aimed to collect up-to-date information on women's preferences and attitudes towards their natural monthly bleeding and appreciated effects of CHCs on withdrawal bleeding and frequency of bleeding episodes, in a central European population which, in this respect, had never been surveyed before. Use of newer contraceptive methods is often associated with unscheduled bleeding or suppression of withdrawal bleeding. We investigated whether that is what women favour. Furthermore we wanted to determine if women would accept higher hormone doses or unscheduled bleeding as part of their attempts to manipulate their cycle according to their needs.

Main findings and interpretation

The main results of this Swiss survey are in accordance with observations in other European countries demonstrating that women's attitudes towards monthly bleeding are manifold within and between age groups (Table 3)[10,16,17].

The perception of bleeding intensity varied significantly between age groups (Table 2). The significantly greater frequency of heavy menstrual bleeding in premenopausal women can be explained by the physiologic changes characterising the climacterium. We were surprised that around 85% of the teenagers we surveyed considered their bleeding episodes to be light or of normal amount; COC users, in this respect, did not differ from non-users. MASs, another potential reason for wishing to postpone monthly bleedings were reported by 52% of all respondents and by more than 56% of those aged 15 to 19 years. These symptoms might be one reason why 30% of the participants preferred to have no bleeding at all and why only 37% indicated a preference for monthly bleedings. The preference for no bleeding was especially high among teenagers (37%) and comparatively low (20%) in the group aged 25 to 34 years. For the majority of women in their late twenties and early thirties pregnancy becomes a topic of great relevance. Regular monthly bleeding might therefore be valued more in this age group, than at an earlier age, when menstruations/withdrawal bleedings might interfere more with lifestyle and are less well accepted. In addition, women in their twenties might be less disturbed by their bleeding, because they are more experienced in handling bleeding problems in their daily life. Among women with MASs, heavy bleeding or long bleeding, the proportions of respondents who wished to suppress menstruation completely or to keep having a monthly bleeding (29% and 39%, respectively) were of the same magnitude as those (33% and 41%, respectively) within the entire study group. Hence it would be wrong to interpret the preference for fewer bleedings as being always the consequence of abnormal bleeding patterns or MASs.

Whereas women's preferences with regard to the frequency and intensity of their bleeding episodes varied considerably depending on age, they were amazingly consistent in their appreciation of the effects of CHCs on those bleeds (Table 5). Only around one third of the participants considered the reduction of the number of bleeding episodes to be important and only 23% would like not to experience any bleeding at all, when using a CHC. Each of those two options was favoured by about 10% more young women (age group 15 to 19 years) in comparison to the other age groups. This suggests that teenagers experience menstrual periods more often as a nuisance than older

Table 5 Effects of combined hormonal contraceptives on monthly bleeding: What women consider positive and important, *n* (%).

	Age group 1 15–19 years (n = 118)	*Age group 2 25–34 years (n = 117)*	*Age group 3 45–49 years (n = 57)*	*Total (N = 292)*
Fewer bleeding days				
Positive	102 (86)	87 (74)	47 (83)	236 (80)
Negative	13 (11)	17 (15)	4 (7)	34 (11)
Breakthrough bleeding				
Positive	2 (2)	6 (5)	5 (9)	13 (5)
Negative	113 (96)	96 (82)	45 (79)	254 (87)
More bleeding days				
Positive	2 (2)	1 (1)	1 (2)	4 (1)
Negative	113 (96)	101 (86)	48 (84)	262 (90)
Less heavy bleeding				
Positive	102 (86)	80 (68)	39 (68)	221 (76)
Negative	13 (11)	20 (17)	11 (19)	44 (15)
Stronger bleeding				
Positive	0 (0)	2 (2)	1 (2)	3 (1)
Negative	115 (98)	99 (85)	47 (84)	262 (90)
Scheduled bleeding				
Positive	110 (93)	98 (84)	44 (77)	252 (86)
Negative	4 (3)	7 (6)	6 (11)	17 (6)
Less discomfort				
Important	93 (78)	80 (68)	32 (56)	205 (78)
Not relevant	23 (19)	22 (19)	14 (25)	59 (22)
No bleeding				
Important	31 (26)	16 (14)	11 (19)	58 (23)
Not relevant	82 (70)	76 (64)	35 (61)	193 (77)
Fewer cycles/year				
Important	43 (36)	24 (21)	13 (23)	80 (32)
Not relevant	69 (58)	71 (61)	32 (56)	172 (68)

women do. Most participants (>86%) attached great value to the predictability of the bleeding episodes and the avoidance of breakthrough bleeding, although the latter symptom was rated negatively less often by women aged 45 to 50 years than by adolescents. This is in line with observations in daily practice that women beyond age 40 are much more willing to accept the unpredictable bleeding pattern frequently associated with progestin-only contraception.

COC users were much more inclined to resort to hormones to alter their cycles according to their needs than nonusers (69% vs.31%; Table 4). Among teenagers not using a COC, the proportion is much higher (48%) than in the older age groups. Only one fourth of the clients aged 25 to 34 years, not currently on a COC would be willing to take hormones to modify their bleeding. The readiness of teenagers to use pharmaceutical products could reflect an aversion to menstruation or a greater willingness of young people to utilise available means to make their life easier. Most women (83%) would not accept an increase in hormone dosage to achieve a more convenient bleeding pattern.

Strengths and limitations of the study

The main strength of this survey is that it provides, for the first time, information about the preferences of women residing in the Zürich area, Switzerland, regarding their preferred menstrual/withdrawal bleeding patterns with and without use of CHCs. The participants had similar cultural and socio-economic

backgrounds. This, together with the splitting into non-confluent age groups allowed us to weigh the influence of age when interpreting the data. Furthermore, comparison of women with normal periods with those with heavy bleeding, long bleeding and MASs, contributed to a more refined interpretation of the results.

The study also has weaknesses. It included a convenience sample of participants residing in the German-speaking, eastern part of Switzerland and may not reflect the attitudes in other parts of the country. Nevertheless we propose that most cultural aspects of the area are similar to those characterising Germany and Austria. Participants and those returning the questionnaire might have been more motivated to share concerns about their bleeding patterns than women who refused to partake in the survey; this could have created a selection bias. For current use of contraception we distinguished only between COC users and non-users. Finally, the use of anonymised questionnaires did not allow us to contact women whose questionnaires were incompletely filled out.

Differences in relation to other studies

Like other investigators we found that most women described the intensity and duration of their menstrual periods as normal[9,11]. But, in contrast to our expectations and the findings of previous studies[1,2,9,11,18], heavy bleeding, long bleeding and MAS were not more prevalent in the subgroup of adolescents than among the older age groups. Be that as it may, teenagers indicated more frequently that they preferred shorter and less heavy bleedings than respondents aged 25 to 34 years.

In the context of the recent, very active promotion of bleeding-free lifestyle by the media, we wondered whether attitudes of women had changed over the last decade. Ten to 15 years ago Wiegratz *et al.*[10] and Tonkelaar *et al.*[14], who had conducted age-differentiated surveys in Western Europe, had found proportions of teenagers with a preference for no bleeding (35% and 41%, respectively) similar to that we observed. The percentages of women in the other age groups desiring suppression of menstruation were more than 10% lower in our survey. Monthly bleedings were favoured by a greater proportion of women (49%), especially in age groups 2 and 3, than in the aforementioned surveys (26% and 35%, respectively). The percentage of teenagers preferring monthly menstrual/withdrawal bleedings was slightly lower in our study (22%) than in the surveys conducted by Wiegratz *et al.*[10] and Tonkelaar *et al.*[14] (26% and 30%, respectively). According to two US studies published in 2004 and 2007, one third of the women preferred not to bleed whereas another third elected to have monthly bleedings[9,12]. Altogether our data indicate that, in spite of the promotion of bleeding-free lifestyles in the media, the proportion of women wanting to alter their bleeding pattern or to suppress bleeding episodes altogether does not seem to have increased over the past decennia. Many more women in the age group 25 to 34 years wished to keep their bleeding pattern unchanged, whereas teenagers had the highest tendency to reduce the frequency of bleedings and were more inclined to utilise CHCs for this purpose. Only small differences between Swiss women and those of other nationalities were observed with regard to the preferred effects of CHCs[10,16]. Predictable bleeding is of great importance to nearly all women, whereas breakthrough bleeding was much disliked by as many as 87% of the respondents. Breakthrough bleeding is indeed a common reason for discontinuation of hormonal methods[19]. Less bleeding days and less heavy bleeding were preferred by more than 75% of the respondents. In a Danish survey more than half of the participants objected to a pill-induced absence of bleedings and around 40% were in favour of monthly periods[10]. In a very recent global survey around 20% of women stated they would rather never bleed or have a bleed only once a year, and that they were prepared to use hormonal contraceptives to this end[16]. In Switzerland, wealth and high education give women a broad range of self-determination. Access to gynaecologists and to information concerning contraception is easy. Therefore our data can possibly not be generalised to other settings. Nevertheless, the similarities of women's desires across western countries are impressive.

Relevance of the findings: Implications for clinicians

Even if a lot of information is available on what women wish when using contraception, one should examine whether modern CHCs comply with these desires. Scheduled bleeding and absence of breakthrough bleeding were highly valued over all age groups. COCs containing 30 μg ethinylestradiol achieve a stable bleeding

pattern, and breakthrough bleeding is rare with longer duration of use[20–22]. In contrast, extended cycles are associated with unpredictable bleeding. Especially for women keen on reducing the frequency of their bleeding episodes, unpredictable bleeds may be less acceptable than short, scheduled ones[8,23–27]. The dose of steroids administered is higher with extended cycles in comparison with a 21/7 regimen, and it appears that the surveyed population would not accept this. New pills containing oestradiol or oestradiol valerate cause less unscheduled bleeding and suppress withdrawal bleeding in 25 to 30% of the cycles[28,29]. Such a bleeding pattern might be more acceptable to those who want to postpone menstruation or who experience persistent breakthrough bleedings during extended cycles. When counselling, doctors should be aware that women's wishes are manifold and that the occurrence of MASs does not necessarily imply the wish to postpone bleeding. If contraceptives are prescribed, the bleeding pattern likely to follow should be discussed in detail.

CONCLUSION

Preferences in terms of menstrual/withdrawal bleeding vary, even within a rather homogeneous population. Some women are more reluctant to use hormones or to change their bleeding pattern, even if they experience menstrual symptoms, whereas around 40% would agree to use a CHC for this purpose. Teenagers are more inclined to modify their menstrual bleeding pattern according to their needs and to utilise hormones to that end. Predictability of bleeding seems to be very important and might be more relevant than the wish to postpone bleeding. With use of a CHC the predictability of bleeds and the avoidance of breakthrough bleeding are highly appreciated.

ACKNOWLEDGEMENTS

The authors thank all patients who agreed to complete the questionnaire.

Declaration of interest: G.M. serves on advisory boards and has received financial support to undertake research and to speak at conferences, from Bayer HealthCare and Merck/MSD. The other authors report no conflicts of interest. No funding was received for this survey. The authors alone are responsible for the content and the writing of the paper.

REFERENCES

1. Lin K, Barnhart K. The clinical rationale for menses-free contraception. *J Womens Health (Larchmt)* 2007; 16:1171–80.
2. Wong LP. Attitudes toward menstruation, menstrual-related symptoms, and premenstrual syndrome among adolescent girls: A rural school-based survey. *Women Health* 2011;51:340–64.
3. Houston AM, Abraham A, Huang Z, D'Angelo LJ. Knowledge, attitudes, and consequences of menstrual health in urban adolescent females. *J Pediatr Adolesc Gynecol* 2006;19:271–5.
4. Fruzzetti F, Paoletti AM, Lombardo M, *et al*. Attitudes of Italian women concerning suppression of menstruation with oral contraceptives. *Eur J Contracept Reprod Health Care* 2008;13:153–7.
5. McEvoy M, Chang J, Coupey SM. Common menstrual disorders in adolescence: Nursing interventions. *MCN Am J Matern Child Nurs* 2004;29:41–9.
6. Sulak PJ, Cressman BE, Waldrop E, *et al*. Extending the duration of active oral contraceptive pills to manage hormone withdrawal symptoms. *Obstet Gynecol* 1997;89:179–83.
7. Picardo CM, Nichols M, Edelman A, *et al*. Women's knowledge and sources of information on the risks and benefits of oral contraception. *J Am Med Womens Assoc* 2003;58:112–16.
8. Archer DF, Jensen JT, Johnson JV, *et al*. Evaluation of a continuous regimen of levonorgestrel/ethinyl estradiol: Phase 3 study results. *Contraception* 2006;74:439–45.
9. Edelman A, Lew R, Cwiak, *et al*. Acceptability of contraceptive-induced amenorrhea in a racially diverse group of US women. *Contraception* 2007;75:450–3.
10. den Tonkelaar I, Oddens BJ. Preferred frequency and characteristics of menstrual bleeding in relation to reproductive status, oral contraceptive use, and hormone replacement therapy use. *Contraception* 1999;59: 357–62.
11. Glasier AF, Smith KB, van der Spuy ZM, *et al*. Amenorrhea associated with contraception – an international study on acceptability. *Contraception* 2003;67:1–8.

12. Andrist LC, Arias RD, Nucatola D, *et al.* Women's and providers' attitudes toward menstrual suppression with extended use of oral contraceptives. *Contraception* 2004;70:359–63.
13. Hitchcock CL, Prior JC. Evidence about extending the duration of oral contraceptive use to suppress menstruation. *Womens Health Issues* 2004;14:201–11.
14. Wiegratz I, Hommel HH, Zimmermann T, *et al.* Attitude of German women and gynecologists towards long-cycle treatment with oral contraceptives. *Contraception* 2004;69:37–42.
15. Makuch MY, Osis MJ, Petta CA, *et al.* Menstrual bleeding: Perspective of Brazilian women. *Contraception* 2011;84:622–27.
16. Szarewski A, von Stenglin A, Rybowski S. Women's attitudes towards monthly bleeding: Results of a global population-based survey. *Eur J Contracept Reprod Health Care* 2012;17:270–83.
17. Snow R, Hardy E, Kneuper E, *et al.* Women's responses to menses and nonbleeding intervals in the USA, Brazil and Germany. *Contraception* 2007;76:23–9.
18. Sundell G, Milsom I, Andersch B. Factors influencing the prevalence and severity of dysmenorrhoea in young women. *Br J Obstet Gynaecol* 1990;97:588–94.
19. Clark LR, Barnes-Harper KT, Ginsburg KR, *et al.* Menstrual irregularity from hormonal contraception: A cause of reproductive health concerns in the minority of adolescent young women. *Contraception* 2006;74:214–9.
20. Loudon NB, Kirkman RJ, Dewsbury JA. A double-blind comparison of the efficacy and acceptability of Femodene and Microgynon-30. *Eur J Obstet Gynecol Reprod Biol* 1990;34:257–66.
21. Bassol S, Alvarado A, Celis C, *et al.* Latin American experience with two low-dose oral contraceptives containing 30 microg ethinylestradiol/75 microg gestodene and 20 microg ethinylestradiol/150 microg desogestrel. *Contraception* 2000;62:131–5.
22. Akerlund M, Rode A, Westergaard J. Comparative profiles of reliability, cycle control and side effects of two oral contraceptive formulations containing 150 micrograms desogestrel and either 30 micrograms or 20 micrograms ethinyl oestradiol. *Br J Obstet Gynaecol* 1993;100:832–8.
23. Anderson FD, Gibbons W, Portman D. Safety and efficacy of an extended-regimen oral contraceptive utilizing continuous low-dose ethinyl estradiol. *Contraception* 2006;73:229–34.
24. Seidman DS, Yeshaya A, Ber A, *et al.* A prospective follow-up of two 21/7 cycles followed by two extended regimen 84/7 cycles with contraceptive pills containing ethinyl estradiol and drospirenone. *Isr Med Assoc J* 2010;12:400–5.
25. Miller L, Hughes JP. Continuous combination oral contraceptive pills to eliminate withdrawal bleeding: A randomized trial. *Obstet Gynecol* 2003;101:653–61.
26. Guazzelli CA, Barreiros FA, Barbosa R, *et al.* Extended regimens of the vaginal contraceptive ring: Cycle control. *Contraception* 2009;80:430–5.
27. Anderson FD, Gibbons W, Portman D. Long-term safety of an extended-cycle oral contraceptive (Seasonale): A 2-year multicenter open-label extension trial. *Am J Obstet Gynecol* 2006;195:92–6.
28. Westhoff C, Kaunitz AM, Korver T, *et al.* Efficacy, safety, and tolerability of a monophasic oral contraceptive containing nomegestrol acetate and 17beta-estradiol: A randomized controlled trial. *Obstet Gynecol* 2012;119:989–99.
29. Ahrendt HJ, Makalova D, Parke S, *et al.* Bleeding pattern and cycle control with an estradiol-based oral contraceptive: A seven-cycle, randomized comparative trial of estradiol valerate/dienogest and ethinyl estradiol/levonorgestrel. *Contraception* 2009;80:436–44.