

Women's attitudes to hormone replacement therapy in the aftermath of the Women's Health Initiative study

Herdís Sveinsdóttir PhD RN

Professor, Faculty of Nursing, University of Iceland, Reykjavík, Iceland

Ragnar F. Ólafsson MA BS

Project Manager, Institute of Nursing Research, University of Iceland, Reykjavík, Iceland

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Correspondence:

Herdís Sveinsdóttir,
Faculty of Nursing,
University of Iceland,
Eirberg,
Eiríksgötu 34,
Reykjavík 101,
Iceland.
E-mail: herdis@hi.is

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Aim. This paper is a report of a study conducted in 2004 on the determinants of attitudes towards hormone replacement therapy in the aftermath of the report on the findings of the Women's Health Initiative study.

Background. The unexpected findings of the Women's Health Initiative study, published in July 2002, showed that the risk of using combined hormones exceeded their benefits. This complicated women's decision-making about hormone use and made it important to study the determinants of their attitudes to hormone therapy, as these are likely to influence their behaviour.

Methods. A cross-sectional design was conducted with a sample of 561 women drawn from the National Registry of Iceland. A self-administered questionnaire, measuring attitudes towards hormone replacement therapy, attitudes towards menopause, extent and source of menopausal education, symptom experience, health and lifestyle and knowledge about the findings of the Women's Health Initiative, was used. The overall response rate was 56%. Attitudes to hormone replacement therapy were compared using ANOVA, *t*-tests and correlations.

Results. Participants generally had positive attitudes. Knowledge about the Women's Health Initiative study was not associated with more negative attitudes. However, receiving the information from and discussing it with a doctor were associated with more positive attitudes. Positive attitudes towards hormone therapy were also associated with higher age, time since last menstrual period and current use of hormone replacement therapy. Negative attitudes were associated with use of natural remedies and receiving information from or discussing hormone therapy with family or friends.

Conclusion. Research is needed to identify the dynamics of the medical interview, and the nature of input from friends, spouse and other family members. The content of these messages may be different and conflicting, for example, between doctors and family members. The nature of this conflict and conflicts of interests need to be identified in order to inform women's decision-making. In addition, action needs to be taken in order to strengthen the advisory role of nurses.

Keywords: nursing, hormone replacement therapy, menopause, attitudes, decision-making, survey, questionnaire

Introduction

The findings of the Women's Health Initiative (WHI) study, made public in July 2002, showed that the risk of using hormone replacement therapy (HRT), consisting of combined hormones of oestrogen and progesterone during menopause, exceeded its benefits (Writing Group for the Women's Health Initiative 2002). The risk was considered so important as to prompt discontinuation of the study three years earlier than the initial plan. These findings provoked strong reactions. The medical perspective was described by Cyr (2003) as shaking 'the medical community's fundamental beliefs about hormone therapy' (p. 15), while the feminist and activist Worcester (2004) claimed that 'no one should have been surprised by the news that HRT did not prevent heart disease and that its long-term safety was questioned. Many researchers and activists have been saying this for over a decade' (p. 57).

Before this, an increase in the use of HRT had been noted in many western countries. In Germany, three per cent of 45–65-year-old women used HRT in 1984/85, while 23% were HRT users in 1994/1995 (Mueller *et al.* 2002). In Norway, the proportion of HRT users aged 45–69 years was 16.3% in 1994 and 19.1% in 1998 (Sogaard *et al.* 2000). Similar trends were observed in Iceland, where a 5.7-fold increase in use of HRT was observed from 1986 to 1995 (Eliasson *et al.* 1998), and 57% of 52–57-year-old women used HRT during the years 1996–2001. Long-term use also increased steadily in Iceland, with 67% of HRT users having been users for > 5 years in 1999–2001, compared with 49% in 1996–1998 (Ármanndóttir *et al.* 2004).

During the 1990s, the discourse in the health literature on menopause and hormone therapy shifted away from symptoms and treatment towards prevention and risk (Murtagh & Hepworth 2003). The dominant HRT discourse began to focus on the risk/benefit ratio of using hormones. Protection against coronary heart disease, osteoporosis, and also Alzheimer's disease during the later years, had been identified as major benefits. The risk was considered minimal and mostly related to a small increase in the prevalence of breast cancer (Grady *et al.* 1992, Jóhannesson *et al.* 1995, Grodstein *et al.* 1996, Col *et al.* 1999, Reynolds *et al.* 2002). Until June 2002, the majority of recommendations to women on the use of HRT were therefore that, although the risk/benefit ratio was not known, the prevailing evidence was in favour of its use (Eliasson *et al.* 1998, Brood-van Zanten *et al.* 2002, Laborde & Foley 2002, Neves-e-Castro 2002). Belief in the benefits of HRT was based on a number of observational epidemiological studies that had shown, for example, that the use of combined hormones during menopause was associated

with decreased risk of coronary heart disease averaging 30–50% (Stampfer & Colditz 1991).

The WHI study was the largest randomized, double-blind, placebo, controlled trial of HRT use among healthy women, and the major findings were in opposition to those of earlier observational studies. The major findings were that healthy women using combined hormones, compared with women using placebo, experienced statistically significantly more serious diseases during the 5-year trial period, including an excess of blood clots, cardiovascular disease, breast cancer and stroke (Writing Group for the Women's Health Initiative 2002). At present not many studies have looked at the influence of the WHI findings on the use of HRT. However, there are indications that they have led to a substantial decrease in its use (Haas *et al.* 2004).

In light of the clinical uncertainty and polemic surrounding the use of HRT, it is important to identify the factors that shape women's attitudes and decisions about HRT use. Studies conducted before the WHI study have found various factors to influence the use of HRT (for a review see Krishna 2002). A strong association has been found between its use and a positive attitude towards the use of HRT (Woods *et al.* 1998, Legare *et al.* 2000, Sogaard *et al.* 2000, Ekström *et al.* 2003). Other factors associated with increased use of HRT include a biomedical view of menopause (Ferguson *et al.* 1989, Hunter *et al.* 1997, Woods *et al.* 1998, Lomranz *et al.* 2000), a negative attitude towards menopause (Bursanont & Hadsall 2004), frequent visits to a physician and physicians' recommendations to use HRT (MacDougall *et al.* 1999, Sogaard *et al.* 2000, Merom *et al.* 2002, Ekström *et al.* 2003, Hvas *et al.* 2003, Lewin *et al.* 2003, Fistonc *et al.* 2004), access to more information about HRT (Bursanont & Hadsall 2004) and increased symptom experience (MacDougall *et al.* 1999, Kittell & Mansfield 2000, Li *et al.* 2000, Merom *et al.* 2002, Ekström *et al.* 2003). Research findings have been contradictory about the influence of higher education on HRT use, some reporting an association between higher education and use of HRT (Li *et al.* 2000, Banks *et al.* 2002, Merom *et al.* 2002, Rachon *et al.* 2004) and others not (Mueller *et al.* 2002, Ekström *et al.* 2003, Fistonc *et al.* 2004) or reporting ambivalence towards the use of HRT among educated women (Sogaard *et al.* 2000). Fistonc *et al.* (2004) showed no association between marital status, employment or age and HRT use. However, Merom *et al.* (2002) found that prevalence of HRT use was highest among 55–59-year-old women in a sample ranging in age from 45 to 74 years. Ekström *et al.* (2003) found that use of HRT was highest among 55–60-year-olds, compared with 45–50-year-olds. Rachon *et al.* (2004) found that the prevalence was higher

among 45–54-year-old women, than those who were 55 years and older.

A internet search using the Web of Science using the keywords hormone replacement therapy, attitudes and decision-making located two studies conducted after July 2002. Blümel *et al.* (2004) focused on the degree of knowledge and on the reactions to the WHI study among 600 women and 283 physicians living in Santiago, Chile. The main findings were that 35% of HRT users contacted physicians after they heard about the WHI study and 4% abandoned its use. Changes in physicians' attitudes were reflected in their prescribing practices, with 64.7% modifying their clinical approach, e.g. applying more rigorous risk/benefit assessment, lowering the dose of HRT and shortening the duration of HRT. Prescription of HRT dropped 8.6% in the three months following the publication of the WHI study. However, only 2.3% of physicians stated that a part of the change in their clinical approach involved educating patients. A study by Moen *et al.* (2005) on Norwegian gynaecologists' attitudes toward HRT after the results of the WHI were known, compared with earlier studies on their attitudes, found statistically significant attitudinal changes. The major finding was that, in the autumn of 2002, 16.4% of respondents said that all women should be offered HRT compared with 38.2% in 1997 and 33.5% in the spring of 2002. There was a statistically significant difference in the gynaecologists' response to increased risk of breast cancer, protection against thrombosis and protection for ischaemic heart disease in the direction of the findings of the WHI study. Interestingly, the personal hormone use of female gynaecologists or the partners of male gynaecologists did not change at all from spring to autumn 2002, indicating that none of them stopped the treatment because of the results of the WHI study.

The Icelandic Ethical Standards for Nurses, article 6, states that 'The nurse shall concern himself/herself with the development of knowledge regarding nursing and build his/her job upon research results for the benefit of the patient' (The Icelandic Nurses' Association 1999). A similar thought is found in the ICN Code of Ethics for Nurses (The International Council of Nurses 2000). At present, it seems that knowledge of how women decide on the use of HRT in the aftermath of the WHI is limited. A search in nursing journals did not reveal that any studies were conducted after the findings of the WHI were made public. In fact, not much is published on HRT in nursing journals. However, because HRT affects a large number of women and is one of the best-selling drug regimens of all times, it seems imperative that nurses are knowledgeable about the controversies related to HRT in order for them to meet the ethical standards of their profession and base their practice on the best research evidence available.

The aim of this study was to explore attitudes towards HRT and identify factors associated with a negative or a positive attitude to HRT. In Iceland, no studies have been conducted on attitudes towards HRT use or other important correlates of its use. Iceland represents an interesting case for a study of determinants of HRT use because of its cultural homogeneity, including general access to a socialised health-care system (Vilhjálmsón 2005) and a widespread but limited number of media sources.

The study

Aim

The aims of our study were to illuminate how women make decisions about HRT by describing their attitudes towards it, and to determine the effect of demographic characteristics, attitudes towards menopause, extent and source of menopausal education, symptom experience, health and lifestyle and knowledge about the findings of the WHI study on these attitudes.

Design

A cross-sectional design was used, with a postal questionnaire and one follow-up reminder. The data were collected in 2004.

Participants

A random sample of 1000 women born 1951 through to 1957, living in the capital of Iceland, Reykjavík, and neighbouring towns was drawn from the National Registry of Iceland. This represented 12.6% of the population. The response rate was 56% ($N = 561$), ranging from 52% to 61% in individual year groups. The composition of the sample also reflected adequately the marital status of the population.

Questionnaire

The questionnaire was mostly designed by the first author, assisted by three nursing students. The questions addressed socio-demographics, perceived menopausal status, information about menopause, sources of information about menopause, perceived information adequacy, present or previous use of HRT and intention to use HRT, symptom experience, attitudes towards menopause, attitudes towards HRT, knowledge about the 2002 findings of the WHI study, use of other methods to alleviate menopausal symptoms, and health and lifestyle.

Menopausal status was assessed by asking, 'Are you menopausal?' (yes/no/don't know). Information about menopause was assessed by two questions: 'Have you received enough information about menopause?' (yes/no) and 'Do you think that the health authorities should provide more information about menopause?' (yes/no). Sources of information were identified by asking, 'Where did you receive information about menopause?' Participants responded by checking (or not) 10 possible sources (see Table 1). Use of HRT and intention to use HRT was assessed by four questions: 'Have you ever used HRT?'; 'Are you presently using HRT?'; 'Have you considered stopping HRT?' and 'Have you considered using HRT?' Possible answers were yes and no. Participants were asked for the presence (yes/no) of any of 18 symptoms in relation to peri-menopause, including hot flushes, sleep disorders, fatigue and anxiety (see Table 2).

Attitudes towards menopause (ATM) were assessed by six statements that were developed by Hvas *et al.* (2003) (see Table 3). The statements were tested for internal consistency and, when two statements had been removed, Cronbach's alpha was 0.72. The statements that were removed were: 'Menopause is a normal part of women's life' and 'Menopause is a period one has to tackle'. Attitudes towards HRT were assessed with seven items also developed by Hvas *et al.*

(2003) (see Table 3). Cronbach's alpha for this scale was 0.84. Possible answers to each statement were agree, disagree and neutral. The statements on attitude towards menopause and on attitude towards HRT were translated into Icelandic by nursing students and back translated by two specialists with good knowledge of English and Icelandic (Sigurdardóttir *et al.* 2004).

A number of questions addressed knowledge about the WHI study. Before these questions the participants were introduced to the WHI study with this text: 'In the summer of 2002, the first results of a US study on the use of HRT were published. The results have generated a considerable debate in this country and abroad.' Participants were then asked: 'Have you heard about the abovementioned study?' (yes/no). If yes, they were asked: 'Where did you hear about the study?' Participants responded by checking (or not) 10 possible sources (see Table 1). Then they were asked: 'With whom have you discussed the outcome of the study?' and participants checked (or not) 9 possible agents (see Table 4).

Participants were asked: 'Have you used any of the following remedies for menopausal symptoms?' (see Table 5). Eight questions related to health and life style. Participants were asked to rate their general health, physical well-being and psychological well-being (very

Table 1 The attitudes towards hormone replacement therapy (Mean, SD) as function of sources of information about menopause and sources of information about the WHI study. Percentage of participants who have received information from each source is indicated.

		Accessed source		Did not access source		
	%	Mean	SD	Mean	SD	t-test
Sources of information about menopause						
Mass media	51	2.2	0.6	2.2	0.6	$t(514) = 0.023; P = 0.982$
Spouse	3	1.8	0.7	2.2	0.6	$t(514) = 1.971; P = 0.049$
Friends (female)	46	2.1	0.6	2.2	0.6	$t(514) = 1.078; P = 0.282$
Other friends	5	1.9	0.6	2.2	0.6	$t(514) = 2.540; P = 0.011$
Colleagues	19	2.2	0.6	2.2	0.6	$t(514) = -0.572; P = 0.568$
Children	1	2.2	0.5	2.2	0.6	$t(514) = -0.345; P = 0.731$
Mother	14	2.2	0.6	2.2	0.6	$t(514) = -0.935; P = 0.350$
Doctor	37	2.3	0.5	2.1	0.6	$t(514) = -3.828; P = 0.001$
Nurse	7	2.2	0.6	2.2	0.6	$t(514) = -0.342; P = 0.732$
The Internet	17	2.1	0.6	2.2	0.6	$t(514) = -1.845; P = 0.066$
Sources of information about the WHI study						
Mass media	96	2.2	0.6	2.4	0.6	$t(345) = -1.114; P = 0.266$
Spouse	3	2.1	0.6	2.2	0.6	$t(346) = 0.372; P = 0.710$
Friends (female)	17	2.3	0.6	2.2	0.6	$t(346) = 1.321; P = 0.187$
Other friends	2	1.9	0.6	2.2	0.6	$t(346) = -1.380; P = 0.168$
Colleagues	17	2.3	0.5	2.2	0.6	$t(346) = 1.162; P = 0.246$
Children	1	2.3	0.4	2.2	0.6	Too few cases
Mother	1	2.2	0.5	2.2	0.6	Too few cases
Doctor	16	2.4	0.5	2.1	0.6	$t(346) = 2.815; P = 0.005$
Nurse	4	2.4	0.5	2.2	0.6	$t(346) = 1.796; P = 0.073$
Internet	7	2	0.6	2.2	0.6	$t(346) = -1.688; P = 0.092$

Symptoms	%	Experienced symptoms		Did not experience symptoms		<i>t</i> -test
		Mean	SD	Mean	SD	
No symptoms	20	2.1	0.6	2.2	0.6	$t(529) = -1.799; P = 0.073$
Hot flashes	58	2.2	0.6	2.2	0.5	$t(529) = 0.123; P = 0.902$
Sleep disturbance	51	2.2	0.6	2.1	0.6	$t(529) = 1.668; P = 0.096$
Mood swings	34	2.2	0.6	2.1	0.6	$t(529) = 0.992; P = 0.322$
Anxiety attacks	26	2.2	0.6	2.1	0.6	$t(529) = 1.501; P = 0.134$
Oversensitivity	31	2.2	0.6	2.2	0.6	$t(529) = 0.114; P = 0.910$
Crying spells	13	2.2	0.6	2.2	0.6	$t(529) = 0.777; P = 0.437$
Difficulty concentrating	17	2.2	0.6	2.2	0.6	$t(529) = 0.142; P = 0.887$
Restlessness	27	2.2	0.6	2.1	0.6	$t(529) = 1.645; P = 0.101$
Changes in heartbeat	24	2.2	0.6	2.2	0.6	$t(529) = 0.182; P = 0.856$
Feeling exhausted	35	2.2	0.6	2.1	0.6	$t(529) = 1.814; P = 0.070$
Woke up tired	33	2.2	0.6	2.1	0.6	$t(529) = 0.409; P = 0.639$
Other sleep problems	7	2.2	0.7	2.2	0.6	$t(529) = 0.631; P = 0.528$
Muscle and joint aches	33	2.2	0.6	2.1	0.6	$t(529) = 0.782; P = 0.435$
Vaginal irritation	17	2.1	0.6	2.1	0.6	$t(529) = -0.413; P = 0.680$
Increased sex drive	6	2.1	0.7	2.2	0.6	$t(529) = -0.991; P = 0.322$
Decreased sex drive	27	2.2	0.6	2.1	0.6	$t(529) = 1.261; P = 0.208$
Respiratory difficulties	5	2.0	0.6	2.2	0.6	$t(529) = -1.867; P = 0.062$

Table 2 Mean and standard deviation of attitudes towards hormone replacement therapy by experience (or not) of symptoms associated with menopause

Table 3 Attitudes to menopause and hormone replacement therapy (HRT). Percentage of participants who agree, disagree or are neutral to various statements about menopause and hormone replacement therapy

	Agree (%)	Disagree (%)	Neutral (%)	Mean	SD*
Attitudes to menopause					
Menopause is a normal part of women's life	95	1	4	2.9	0.3
Menopause is a good experience for women	11	34	54	1.8	0.6
Menopause is a period of personal growth	27	20	53	2.1	0.7
Menopause is a period one has to tackle	88	3	9	2.9	0.4
Menopause is a boring time for women [†]	37	20	43	2.2	0.7
Menopause is a bad experience for women [†]	21	23	53	2.0	0.7
Attitudes to HRT therapy					
HRT is a good solution if one has many symptoms	71	5	24	2.7	0.6
HRT is a good solution, even if one experiences only few symptoms	19	42	39	1.8	0.8
HRT is to be avoided [†]	29	34	37	2.0	0.8
HRT is unhealthy [†]	14	40	46	1.7	0.7
HRT is a good solution to prevent age-related health problems	27	22	51	2.0	0.7
HRT is a bad solution to prevent age-related health problems [†]	19	28	53	1.9	0.7
HRT has many side effects [†]	29	13	58	2.2	0.6

*In calculating the mean and SD the responses were scored: agree = 3, disagree = 1 and neutral = 2.

[†]These items were reversed for inclusion in the total attitudes.

good/good/reasonable/bad). These three were combined into one scale labelled *Self-assessed health* (Cronbach's $\alpha = 0.85$). In two questions, participants were asked to compare their health and physical activity with the health and physical activity of other women their own age. Possible responses were worse, similar and better. These two questions were combined into one scale labelled *Relative health and physical activity* (Cronbach's

$\alpha = 0.71$). Participants were asked: 'Do you engage in physical exercise regularly?' (daily or almost daily/3–5 times a week/1–2 times a week/less than once a week/less than once a month or never); 'Do you smoke or have you ever smoked?' (no, have never smoked/no, smoked but quit smoking more than a year ago/no smoked but quit smoking less than a year ago/yes, but smoke more seldom than daily/yes, smoke daily); 'Do you eat at least three

Table 4 The attitudes towards hormone replacement therapy (Mean, SD) as function of persons with whom the participants have discussed the outcome of the study. Percentage of participants who have received information from each source is also indicated

With whom have you discussed the outcome of the study?	%	Have discussed with		Have not discussed with		<i>t</i> -test
		Mean	SD	Mean	SD	
No-one	15	2.2	0.6	2.2	0.6	$t(346) = -0.095$; $P = 0.924$
Spouse	25	2.2	0.6	2.2	0.6	$t(346) = 0.757$; $P = 0.450$
Friends (female)	57	2.1	0.6	2.2	0.6	$t(346) = -1.134$; $P = 0.258$
Other friends	6	2	0.6	2.2	0.6	$t(346) = -1.486$; $P = 0.138$
Colleagues	35	2.2	0.6	2.1	0.6	$t(346) = 1.355$; $P = 0.176$
Children	4	1.8	0.7	2.2	0.6	$t(346) = -2.086$; $P = 0.038$
Mother	5	2.1	0.6	2.2	0.6	$t(346) = -0.303$; $P = 0.762$
Doctor	37	2.3	0.6	2.1	0.6	$t(346) = 4.174$; $P = 0.001$
Nurse	4	2.3	0.6	2.2	0.6	$t(346) = 0.802$; $P = 0.423$

Table 5 The attitudes towards hormone replacement therapy (Mean, SD) as function of use (or not) of various alternative remedies. Percentage of participants who have used each remedy

Alternative remedy	%	Used remedy		Did not use remedy		<i>t</i> -test
		Mean	SD	Mean	SD	
Natural hormone	15	2.1	0.6	2.2	0.6	$t(496) = -0.770$; $P = 0.422$
Vitamins/Minerals	40	2.1	0.6	2.2	0.6	$t(495) = -1.485$; $P = 0.138$
Herbal tea	12	2.1	0.6	2.2	0.6	$t(495) = -0.693$; $P = 0.489$
Relaxation	17	2.0	0.6	2.2	0.6	$t(494) = -2.346$; $P = 0.019$
Homeopathic	2	2.0	0.6	2.2	0.6	$t(494) = -1.075$; $P = 0.283$
Acupuncture	3	2.0	0.6	2.2	0.6	$t(439) = -0.774$; $P = 0.439$
Natural medicine	12	2.0	0.6	2.2	0.6	$t(439) = -2.466$; $P = 0.014$
Chiropractic	2	2.3	0.3	2.2	0.6	$t(495) = 0.066$; $P = 0.947$
Meditation	6	1.9	0.5	2.2	0.6	$t(495) = -1.973$; $P = 0.049$
None of the above	46	2.2	0.6	2.1	0.6	$t(495) = 2.220$; $P = 0.027$

meals a day?' (no, almost never/yes, a few times a month/yes, 1 or 2 days a week/yes, 3 or 4 days a week/yes, 5–7 days a week).

The questionnaire was piloted for clarity by administering it to 10 women aged 47–53. Minor changes were made on the final version based on participants' suggestions.

Ethical considerations

The National Bioethics Committee approved the study and the Data Protection Commission was informed, according to Icelandic law. Along with the questionnaires, an introductory letter was mailed to all potential participants informing them that participation was voluntary and that the data would be reported in an anonymous and confidential manner.

Data analysis

The main variable of the study was the measure of attitudes to HRT. It consisted of the mean of agreement/disagreement

ratings of seven statements about HRT. Statements expressing negative attitudes to HRT were reverse-scored. For further analysis, the responses for each statement were scored (1, disagree; 2, neutral and 3, agree) and averaged, and the total average score found for the attitude scale. A high score thus indicated positive attitudes. Cronbach's alpha for the scale was 0.84.

Attitudes to HRT were compared using ANOVA, *t*-tests and correlations (Spearman and Pearson) as appropriate. Variables showing statistically significant differences from or statistically significant relationships with the attitude scale were entered into a multiple regression model. The variables were entered in separate blocks and precedence given to those that, arguably, were earlier in the causal chain.

Results

Attitudes to HRT and menopause

Seven statements measured attitudes towards HRT and another six items measured attitudes to menopause. Scales

were developed for each of these. However, it is of interest to show the proportion of participants who agree, disagree or are neutral towards each statement. This is shown in Table 3. The Pearson correlation between attitudes to menopause and attitudes to HRT was $r = -0.034$ ($P = 0.228$).

Background variables

The correlation of attitudes to HRT with age and number of children was $r = 0.128$ ($P = 0.006$) and $r = 0.04$ ($P = 0.361$), respectively, indicating a small positive association between age and attitudes to HRT.

Three ANOVAs were conducted to explore the relationship between attitudes to HRT and marital status, education and occupation respectively. Means, standard deviations and the outcome of the ANOVAs are shown in Table 6. None of the relationships were statistically significant.

Menopausal status

The relationship between attitudes to HRT and various indicators of menopausal status was tested. A series of ANOVAs and *t*-tests failed to show any effect of perceived regularity of period, menopausal status (whether menopause is reached or not) or the use of contraceptives on attitudes to HRT. However, a medical intervention such as unilateral oophorectomy is associated with more negative attitudes towards hormone therapy, bilateral oophorectomy is associated with more positive attitudes. No statistically significant differences in attitudes are associated with hysterectomy.

There was a very weak correlation between attitudes to HRT and length of time since last period ($r = 0.10$; $P = 0.018$) such that more positive attitudes are associated with longer time elapsed since last period.

Information

Two sets of questions addressed the issue of participants' sources of information about menopause and about the WHI study. The effect of the received information on attitudes to HRT was assessed (see Table 1). Results indicate that receiving information from a doctor is associated with more positive attitude to hormone therapy. Conversely, receiving information from spouse and friends other than female friends is associated with more negative attitudes to hormone therapy. Similarly, receiving information from doctors about the WHI study is associated with more positive attitudes to hormone therapy.

Table 6 Mean and standard deviation of attitudes towards hormone replacement therapy by marital status, education, occupation and menopausal status

Background variables	N	Mean	SD	ANOVA
Marital status				
Single	39	2.1	0.6	$F(3,536) = 0.993$; $P = 0.396$
Married/cohabiting	412	2.2	0.6	
Widow	7	2.9	0.6	
Divorced	82	2.2	0.6	
Education				
Lower secondary				
School	175	2.1	0.6	$F(5,531) = 1.042$; $P = 0.392$
Commercial College	29	2.3	0.5	
Technical	40	2.2	0.6	
Upper secondary				
School	43	2.1	0.5	
University degree	174	2.1	0.6	
Other	76			
Occupation				
Clerk	125	2.2	0.6	$F(6,514) = 0.838$; $P = 0.541$
Expertise	139	2.1	0.6	
Industrial expertise	26	2.2	0.6	
Office manager	118	2.2	0.5	
Company owner	73	2	0.6	
Student	3	2.5	0.8	
Housewife	37	2.2	0.6	
Menopausal status				
Have you reached menopause?				
Yes	270	2.2	0.6	$F(2,524) = 2.33$; $P = 0.098$
No	108	2.1	0.6	
Don't know	149	2.2	0.5	
Regularity of period				
Regular	166	2.1	0.6	$F(2,402) = 0.397$; $P = 0.672$
Irregular	86	2.1	0.6	
No period	153	2.2	0.6	
Use of contraceptives at present				
Yes	101	2.1	0.6	$t(431) = 0.650$; $P = 0.516$
No	332	2.2	0.6	
Unilateral oophorectomy				
Yes	31	1.9	0.8	$t(462) = -2.366$; $P = 0.018$
No	433	2.2	0.6	
Bilateral oophorectomy				
Yes	23	2.5	0.6	$t(464) = 3.199$; $P = 0.001$
No	443	2.2	0.6	
Hysterectomy				
Yes	80	2.3	0.6	$t(502) = 1.813$; $P = 0.070$
No	424	2.2	0.6	

Attitudes to HRT were also compared on a number of other questions relating to information about menopause and the WHI study (see Tables 4, 7).

Overall, there are no differences in attitudes to HRT linked to whether participants have heard of the WHI study or not, felt they had received enough information about menopause or whether they believed health authorities should do more to promote information about menopause. However, discussing

Table 7 The attitudes towards hormone replacement therapy (Mean, SD) as function of perceived adequacy of information about menopause and knowledge of the WHI study

	Yes		No		<i>t</i> -test
	Mean	SD	Mean	SD	
Have you received enough information about menopause?	2.2	0.6	2.1	0.6	$t(512) = 0.497; P = 0.620$
Do you think that the health authorities should provide more information about menopause?	2.2	0.6	2.1	0.6	$t(516) = 0.279; P = 0.780$
Have you heard about the WHI study?	2.2	0.6	2.2	0.6	$t(534) = 0.220; P = 0.826$

the outcome of the study with the doctor is associated with more positive attitudes towards HRT, but discussing it with children is associated with a more negative attitude.

Symptoms

No differences were observed in the attitudes of those who had experienced symptoms vs. those who had not (see Table 2). However, the Spearman correlation between total number of symptoms and attitudes to HRT was statistically significant ($\rho = 0.09; P = 0.035$).

Use of alternative remedies

The attitudes to HRT therapy were examined as a function of the use of various alternative remedies (Table 5). Three of the alternative remedies show a difference in attitudes towards HRT with users showing more negative attitudes towards HRT than non-users. A similar tendency is observed for all the other remedies except chiropractic, although it is not of statistical significance. A user-index of alternative medicines was computed, representing the total number of different alternative remedies used. This scale had a correlation of $\rho = -0.10$ ($P = 0.022$), indicating that use of alternative remedies is negatively related to attitudes towards HRT therapy.

Other health indicators

The association between various health indicators and attitude to HRT was assessed. Spearman's rho was computed

between attitudes towards HRT and perceived health ($\rho = 0.028; P = 0.277$) and with perceived relative health ($\rho = -0.04; P = 0.383$). In addition, attitudes were correlated with three single item measures: The practice of physical exercise ($\rho = 0.035; P = 0.427$), the frequency of eating at least three meals per day ($\rho = -0.059; P = 0.182$) and smoking ($\rho = -0.003; P = 0.942$). The number of times participants went to the doctor during the last year was positively associated with attitudes towards HRT ($\rho = 0.125; P = 0.004$).

User status

Attitudes towards HRT were examined depending on participants' hormone user status (see Table 8). ANOVA was statistically significant [$F(4.539) = 27.927; P < 0.001$]. As expected, the attitudes are more favourable among users and previous users than amongst non-users.

Regression analysis

Based on the above computations, a multiple regression model to explain attitudes towards HRT was tested. Variables were entered if the analyses above had shown statistically significant links with attitudes towards HRT. Variables were entered in four blocks arguably reflecting a causal order (see Table 9). This produced four successive models consisting of one to four blocks respectively. The enter method was used within blocks.

The explained variance in each block is 1.9%, 8.1%, 2.8% and 10.8%, respectively, leading to a total R^2 of 0.237

Table 8 Attitudes to hormone use by user status

Status	N	Mean	SD
Has never used and has not considered starting use	252	2.0	0.6
Has never used, but has considered starting use	55	2.2	0.5
Uses now and has not considered stopping use	56	2.6	0.3
Uses now, but has considered stopping use	68	2.5	0.5
Used previously, but has stopped use	113	2.1	0.6
Total	554	2.2	0.6

Table 9 Final regression model explaining attitudes towards hormone replacement therapy

						Confidence interval	
	<i>B</i>	SE	Beta	<i>t</i>	Sig.	Lower bound	Upper bound
Model 1							
Constant	1.979	0.080		24.677	0.000	1.821	2.137
Age	0.026	0.017	0.091	1.550	0.122	−0.007	0.060
Time since last period	0.016	0.015	0.067	1.126	0.261	−0.012	0.045
Number of menopausal symptoms	0.005	0.009	0.033	0.595	0.552	−0.013	0.023
Model 2							
Constant	1.954	0.079		24.590	0.000	1.797	2.110
Age	0.018	0.017	0.061	1.066	0.287	−0.015	0.050
Time since last period	0.015	0.014	0.061	1.061	0.289	−0.013	0.043
Number of menopausal symptoms	−0.001	0.009	−0.005	−0.094	0.925	−0.019	0.017
Received information about menopause from spouse	−0.286	0.197	−0.077	−1.451	0.148	−0.673	0.102
Received information about menopause from other friends	−0.256	0.146	−0.094	−1.753	0.081	−0.543	0.031
Received information about menopause from doctor	0.100	0.070	0.081	1.424	0.155	−0.038	0.238
Received information about WHI study from doctor	0.072	0.095	0.045	0.757	0.450	−0.115	0.260
Discussed outcome of WHI study with my children	−0.368	0.173	−0.116	−2.129	0.034	−0.708	−0.028
Discussed outcome of WHI study with doctor	0.209	0.076	0.169	2.741	0.006	0.059	0.359
Model 3							
Constant	1.870	0.105		17.865	0.000	1.664	2.075
Age	0.018	0.017	0.061	1.060	0.290	−0.015	0.050
Time since last period	0.011	0.014	0.046	0.798	0.426	−0.017	0.039
Number of menopausal symptoms	0.004	0.010	0.023	0.406	0.685	−0.015	0.023
Received information about menopause from spouse	−0.300	0.195	−0.081	−1.543	0.124	−0.683	0.083
Received information about menopause from other friends	−0.210	0.145	−0.077	−1.445	0.150	−0.495	0.076
Received information about menopause from doctor	0.110	0.070	0.090	1.580	0.115	−0.027	0.248
Received information about WHI study from doctor	0.042	0.095	0.026	0.439	0.661	−0.145	0.228
Discussed outcome of WHI study with my children	−0.281	0.174	−0.089	−1.612	0.108	−0.624	0.062
Discussed outcome of WHI study with doctor	0.203	0.076	0.165	2.675	0.008	0.054	0.353
Use of alternative natural remedies	−0.068	0.025	−0.159	−2.755	0.006	−0.116	−0.019
How often did you go to the doctors last year?	0.066	0.035	0.104	1.864	0.063	−0.004	0.135
Model 4							
Constant	1.925	0.101		19.044	0.000	1.726	2.124
Age	0.005	0.016	0.017	0.307	0.759	−0.026	0.036
Time since last period	0.003	0.014	0.011	0.199	0.842	−0.024	0.029
Number of menopausal symptoms	−0.011	0.009	−0.069	−1.217	0.225	−0.030	0.007
Received information about menopause from spouse	−0.305	0.183	−0.082	−1.666	0.097	−0.666	0.055
Received information about menopause from other friends	−0.177	0.137	−0.065	−1.296	0.196	−0.447	0.092
Received information about menopause from doctor	0.064	0.067	0.052	0.960	0.338	−0.067	0.195
Received information about WHI study from doctor	−0.024	0.090	−0.015	−0.267	0.789	−0.201	0.153
Discussed outcome of WHI study with my children	−0.321	0.164	−0.101	−1.952	0.052	−0.645	0.003
Discussed outcome of WHI study with doctor	0.134	0.074	0.109	1.812	0.071	−0.012	0.280
Use of alternative natural remedies	−0.052	0.023	−0.121	−2.206	0.028	−0.097	−0.006
How often did you go to the doctor last year	0.037	0.034	0.059	1.100	0.272	−0.029	0.104
Uses now but has considered stopping use	0.498	0.109	0.279	4.591	0.000	0.285	0.712
Uses now and has not considered stopping use	0.638	0.110	0.327	5.817	0.000	0.422	0.853
Used previously, but has stopped use	0.154	0.087	0.105	1.773	0.077	−0.017	0.325
Has never used, but has considered starting use	0.291	0.104	0.148	2.809	0.005	0.087	0.494

(adjusted R^2 of 0.201). While the contribution of each variable is not always statistically significant, the results suggest that attitudes to HRT are more favourable as participants enter further into menopause. Receiving information from doctors is associated with more positive

attitudes, but information from friends and family is associated with more negative views. Not surprisingly, the use of natural alternative drugs is associated with negative views towards HRT. The first three blocks explain a total of 12.8% of the variance. In addition, users who have not considered

stopping and users who have considered stopping hormone use have more positive attitudes than the comparison groups of non-users. The final model explains 23.7% of the variance.

Discussion

This first national study of women's attitudes towards the use of HRT found that Icelandic women aged 47–53 have a rather positive attitude towards its use, with HRT users having a more positive view than non-users. This is in accordance with previous studies that have found positive attitude to be associated with the use of or the intention to adopt HRT (Woods *et al.* 1998, Legare *et al.* 2000, Sogaard *et al.* 2000, Ekström *et al.* 2003).

Our study indicates that receiving information about menopause and about the WHI study from doctors is associated with more positive attitudes towards HRT. Similar findings have been reported in several other studies (MacDougall *et al.* 1999, Sogaard *et al.* 2000, Merom *et al.* 2002, Ekström *et al.* 2003, Hvas *et al.* 2003, Lewin *et al.* 2003, Fistonc *et al.* 2004). A debate on the possible reasons for this is present in the literature. Some maintain that doctors adhere too rigidly to the medical model that has presented menopause as a deficiency disease and that most women would benefit from HRT use. Moreover, studies with female physicians have found that they were more likely to use HRT than other women (Isaacs *et al.* 1995, Anderson *et al.* 1996, McNagny *et al.* 1997) and that they had not stopped using HRT following the WHI findings (Moen *et al.* 2005). This lends further support to the view that physicians trusted the benefits of using HRT and therefore recommended it. Others point out that the women who visit doctors tend to be those with the most severe symptoms and are therefore in greatest need of HRT.

As women who have sought information from doctors about menopause and HRT have more positive attitudes towards HRT than those who have not, it is imperative to research doctors' recommendations on the issue. What is the content of the message they are giving to women, in light of the results of the WHI study? An observational study on how the subject of HRT is brought up and how the discussion unfolds during a woman's visit to a physician is highly relevant. An interesting question to ask is how the risk/benefit analysis of HRT use would be presented and discussed during the women–physician interaction. An example of that kind of research is Fishers (1988) study on medical decision-making regarding treatment following a detection of cervical dysplasia. The study indicated that the mechanisms by which physicians structure the medical interview predetermine women's questions and the general outcome of the interview, including treatment decision.

A small number of participants received information from nurses about menopause and the WHI study and discussed the WHI outcomes with a nurse. In Iceland, where there are no specific women's health centres, nurses mostly encounter healthy women at community health centres. The common practice is that, if women have problems or questions about health matters specific to women, they make an appointment with a gynaecologist at their private office. It is not customary for a nurse or third person to be present during the interview. Therefore, this finding was not surprising. It is, however, our belief that strengthening the consultation role of nurses would benefit women. This belief is based on the different approach that nurses take in their practice compared with physicians, as is well described by Fisher (1995) in a study of communication between nurse practitioners and women patients versus physicians and women patients. Fisher's findings indicated that nurses tend to distance themselves from their professional identities, respond to their patients woman-to-woman, and thereby undermine traditional understandings about gender arrangements. Fisher's conclusions were that nurses are more egalitarian and less hierarchical than physicians, and that they deliver healthcare in a way that favours the ideals of democracy, equity and fairness.

We found that receiving information from family and friends was associated with more negative attitudes towards HRT, indicating that these people are rather more conservative about the use of HRT than the women themselves. This included spouses or partners, assumed male in most instances, and other friends, also assumed to be male. This is interesting as it might indicate that men are more conservative about the use of HRT than women, which would comply with a trend that has been found when male physicians have been compared with female physicians (Seto *et al.* 1996, Exline *et al.* 1998). The importance of information on attitudes towards HRT is confirmed in the present study as variables measuring access to information contributed 8.1% to the total variance explained. These findings also indicate that there is not a strong societal pressure to use HRT.

While 51% of women claim they have received information about menopause in the media, this is not reflected in differences in attitudes towards HRT if compared with those not receiving information from the media. A detailed analysis of the coverage of menopause and HRT in Icelandic media has not yet been conducted. However, studies from the UK and USA have found the portrayal of menopause and the management of menopause in the media to be diverse in content. A biomedical perspective is dominant, but less prominent are views that build on a holistic approach and a combination of social, cultural, psychological and physiological factors. However, information is contradictory and

What is already known about this topic

- There was an increase in the use of combined hormone replacement therapy during menopause in many western countries during the 1990s.
- In 2002, the first double-blind clinical trial on use of combined hormone replacement therapy among healthy women (Women's Health Initiative study) during menopause was discontinued because of unfavourable risk associated with its use.
- Before the release of the study findings, a strong association had been found between use of hormones and women's positive attitude towards their use.

What this paper adds

- Icelandic women aged 47–53 have rather positive attitudes towards the use of hormone replacement therapy with hormone users having a more positive view than non-users.
- Physicians exert a strong influence on women's decision-making about use of hormone replacement therapy around menopause.
- The further women are into menopause, the more favourable their attitudes.

limited and menopause is mostly negatively portrayed (Gannon & Stevens 1998, Lyons & Griffin 2003). Studies on media coverage have not included Internet exposure. Over 80% of the Icelandic population, aged 16–74 are Internet users (Statistical Series 2004). Thus it is difficult to draw conclusions about the content of information on HRT accessible to Icelandic women in the media and on the Internet. In light of our finding that receiving information on menopause from the media is not associated with either a more positive or negative attitude to HRT, it is important to examine the content of information on HRT accessible to Icelandic women through media sources.

Higher age and time elapsed since last menstrual period were associated with a more positive attitude towards HRT. Direct comparison with other studies is difficult since the age of the participants is restricted to peri-menopause, i.e. women aged 47–53 years. Phelan *et al.* (2001) found positive attitudes associated with younger age among women aged 50–80 years while Wagner *et al.* (1995) found that middle-aged women held more positive attitudes towards HRT than college students. The effect of age may be a reflection of a number of other less accessible factors, social, psychological and biological, which affect women differently. These factors

need to be identified, as age is only a reflection of what happens in different life periods.

The study showed a weak correlation between attitudes towards HRT and total number of menopausal symptoms. This is in accordance with studies that have found symptom experience influences use of HRT (MacDougall *et al.* 1999, Kittell & Mansfield 2000, Li *et al.* 2000, Merom *et al.* 2002, Ekström *et al.* 2003). Future studies should also assess the severity of symptoms and not merely their presence as was the case in the present study, since severity may be a better predictor of HRT use.

As expected, the use of alternative 'natural' remedies is associated with more negative attitudes towards HRT. Among these are meditation, relaxation and the use of natural medicine. The trend in studies that have addressed the use of alternative remedies has been that never-users of HRT are more in favour of using these remedies (Newton *et al.* 2002, Lewin *et al.* 2003). This may reflect an overall culture of aversion to 'drugs' (HRT being one such) leading some people to try other more 'natural' remedies.

Conclusion

Further research is needed to identify the content of the messages sent out to women via the media, the dynamics of the medical interview, and the nature of input from friends, spouse and other family members. The content of these messages may be different and conflicting, as the present study shows to be the case, e.g. between doctors and family. The nature of this conflict, and possible conflicts of interests, needs to be identified in order to inform women's decision-making. In addition, action needs to be taken in order to strengthen the advisory role of nurses when caring for women who may be using or considering using HRT.

References

- Anderson K., Mattson L.Å. & Milsom I. (1996) Use of hormone replacement therapy. *The Lancet* **348**, 1521–1529.
- Ármanndóttir B., Tryggvadóttir L., Jónasson J.G., Ólafsdóttir E.J. & Guðmundsson J.A. (2004) Notkun tíðahvarfahormóna hjá íslenskum konum árin 1996–2001. (Use of hormone replacement therapy by Icelandic women in the years 1996–2001). *Læknablaðið* **90**, 471–477.
- Banks E., Beral V., Reeves G. & Barnes I. (Million Women Study Collaborators (writing group)) (2002) Patterns of use of hormone replacement therapy in one million women in Britain, 1996–2000. *British Journal of Obstetrics and Gynaecology* **109**, 1319–1330.
- Blümel J.E., Castelo-Branco C., Chedraui P.A., Binfa L., Dowlani B., Gomez M.S. & Sarra S. (2004) Patients' and clinicians' attitudes after the Women's Health Initiative study. *Menopause* **11**(1), 57–61.

- Brood-van Zanten M.M., Barentsen R. & van der Mooren M.J. (2002) Hormone replacement therapy and surveillance considerations. *Maturitas* 43(Suppl. 1), S57–S67.
- Burusanont M. & Hadsall R.S. (2004) Factors associated with intention to use hormone replacement therapy among Thai middle-aged women. *Maturitas* 47, 219–227.
- Col N.F., Pauker S.G., Goldberg R.J., Eckman M.H., Orr R.K., Ross E.M. & Wong J.B. (1999) Individualizing therapy to prevent longterm consequences of estrogen deficiency in postmenopausal women. *Archives of Internal Medicine* 15, 1458–1466.
- Cyr M.G. (2003) Postmenopausal hormone therapy in the aftermath of the WHI. What patients need to know. *Postgraduate Medicine* 113, 15–18, 20.
- Eklström H., Esseveld K. & Hovelius B. (2003) Associations between attitudes toward hormone therapy and current use of it in middle-aged women. *Maturitas* 46, 45–57.
- Eliasson J.H., Tryggvadóttir L., Tulinius H. & Guðmundsson J.A. (1998) Hormónameðferð kvenna á Íslandi. (Use of hormone replacement therapy among Icelandic women). *Læknablaðið* 84, 25–31.
- Exline J.L., Siegler I.C. & Bastian L.A. (1998) Differences in providers' beliefs about benefits and risks of hormone replacement therapy in managed care. *Journal of Women's Health* 7, 879–884.
- Ferguson K.J., Hoegh C. & Johnson S. (1989) Estrogen replacement therapy. A survey of women's knowledge and attitudes. *Archives of Internal Medicine* 159, 133–136.
- Fisher S. (1988) *In the Patient's Best Interest. Women and the Politics of Medical Decisions*. Rutgers University Press, New Brunswick, New Jersey.
- Fisher S. (1995) *Nursing Wounds. Nurse Practitioners, Doctors, Womenpatients and the Negotiation of Meaning*. Rutgers University Press, New Brunswick, New Jersey.
- Fistonic I., Srecko C., Marina F. & Ivan S. (2004) Menopause in Croatia. Socio-demographic characteristics, women's attitudes and source of information, compliance with HRT. *Maturitas* 47, 91–98.
- Gannon L. & Stevens J. (1998) Portraits of menopause in the mass media. *Women & Health* 27, 1–15.
- Grady D., Rubin S.M., Petitti D.B., Fox C.S., Black D., Ettinger B., Ernster V.L. & Cummings S.R. (1992) Hormone therapy to prevent disease and prolong life in postmenopausal women. *Annals of Internal Medicine* 117, 1016–1037.
- Grodstein F., Stampfer M.J., Manson J.E., Colditz G.A., Willett W.C., Rosnes B., Speizer F.E. & Hennekens C.H. (1996) Postmenopausal estrogen and progestin use and the risk of cardiovascular disease. *New England Journal of Medicine* 335, 453–461.
- Haas J.S., Kaplan C.P., Gerstenberger E.P. & Kerlikowske K. (2004) Changes in the use of postmenopausal hormone therapy after the publication of clinical trial results. *Annals of Internal Medicine* 140, 184–188.
- Hunter M.S., O'Dea I. & Britten N. (1997) Decision-making and hormone replacement therapy: a qualitative analysis. *Social Science and Medicine* 45, 1541–1548.
- Hvas L., Thorsen H. & Söndergaard K. (2003) Discussing menopause in general practice. *Maturitas* 46, 139–146.
- International Council of Nurses (2000) *The ICN Code of Ethics for Nurses*. The International Council of Nurses, Geneva. Retrieved from <http://www.icn.ch/icncode.pdf> on 12 October 2005.
- Isaacs A.J., Britton A.R. & McPherson K. (1995) Utilization of hormone replacement therapy by women doctors. *British Medical Journal* 311, 1399–1401.
- Jóhannesson A., Guðmundsson J.A., Fjeldsted K., Sigurðsson G., Mogensen B., Hallgrímsson J.P., Halldórsson Þ. & Teitsson I. (1995) Beinþynning. Orsakir, greining og meðferð. (Osteoporosis. Etiology, diagnosis and treatment). *Læknablaðið* 81, 426–432.
- Kittell L.A. & Mansfield P.K. (2000) What perimenopausal women think about using hormone during menopause. *Women and Health* 30, 77–91.
- Krishna S. (2002) Attitudes toward menopausal and therapy hormone replacement therapy in different cultures. *International Congress* 1229, 207–214.
- Laborde J. & Foley M.E. (2002) Hormone replacement therapy counselling: prevalence and predictors. *Journal of Women's Health* 11, 805–811.
- Legare F., Godin G., Guilbert E., Laperriere L. & Dodin S. (2000) Determinants of the intention to adopt hormone replacement therapy among premenopausal women. *Maturitas* 34, 211–218.
- Lewin K.J., Sinclair H.K. & Bond C.M. (2003) Women's knowledge of and attitudes towards hormone replacement therapy. *Family Practice* 20, 112–119.
- Li C., Samsioe G., Lidfelt J., Nerbrand C. & Agardh C.D. (2000) Important factors for use of hormone replacement therapy: a population-based study of Swedish women. The Women's Health in Lund Area (WHILA) Study. *Menopause* 7, 273–281.
- Lomranz J., Becker D., Eyal N., Pines A. & Mester R. (2000) Attitudes towards hormone replacement therapy among middle aged women and men. *European Journal of Obstetrics; Gynecology and Reproductive Biology* 93, 199–203.
- Lyons A.C. & Griffin C. (2003) Managing menopause: a qualitative analysis of self-help literature for women at midlife. *Social Science and Medicine* 56, 1629–1642.
- MacDougall L.A., Barzilay J.I. & Helmick C.G. (1999) The role of personal health concerns and knowledge of the health effects of hormone replacement therapy (HRT) on the ever use of HRT by menopausal women, aged 50–54 years. *Journal of Women's Health and Gender-Based Medicine* 8, 1203–1211.
- McNaghy S.E., Wegner N.K. & Frank E. (1997) Personal use of postmenopausal hormone replacement therapy by women physicians in the United States. *Annals of Internal Medicine* 127, 1093–1096.
- Merom D., Ifrah A., Cohen-Manheim I., Chinich A. & Green M.S. (2002) Factors predicting current use of hormone replacement therapy among menopausal women in Israel: the National Women's Health Interview Survey, 1999. *The Israel Medical Association Journal* 4, 671–676.
- Moen M.H., Nilsen S.T. & Iversen O.E. (2005) A significant change in Norwegian gynecologist's attitude to hormone therapy is observed after the results of the Women's Health Initiative Study. *Acta Obstetrica et Gynecologica Scandinavica* 84, 92–93.
- Mueller J.E., Doring A., Heier M. & Lowel H. (2002) Prevalence and determinants of hormone replacement therapy in German women 1984–1995. *Maturitas* 43, 95–104.
- Murtagh M.J. & Hepworth J. (2003) Menopause as a long-term risk to health: implications of general practitioner accounts of prevention for women's choice and decision-making. *Sociology of Health and Illness* 25, 185–207.

- Neves-e-Castro M. (2002) Is there a menopausal medicine? The past, the present and the future. *Maturitas* 43(Suppl. 1), S79–S84.
- Newton K.M., Buist D.S., Keenan N.L., Anderson L.A. & Lacroix A.Z. (2002) Use of alternative therapies for menopause symptoms: results of a population-based survey. *Obstetrics and Gynecology* 100, 18–25.
- Phelan E.A., Buist D.S., Anderson L.A., Newton K.M., Delaney K.M. & LaCroix A.Z. (2001) Understanding attitudes of older women toward hormone replacement therapy. *Preventive Medicine* 32, 49–56.
- Rachon D., Zdrojewski T., Suchecka-Rachon K., Szpakowski P., Bandosz P., Manikowski A. & Wyrzykowski B. (2004) Knowledge and use of hormone replacement therapy among Polish women: estimates from a nationally representative study-HORTPOL 2002. *Maturitas* 47, 31–37.
- Reynolds R.F., Obermeyer C.M., Walker A.M. & Guilbert D. (2002) The role of treatment intentions and concerns about side effects in women's decision to discontinue postmenopausal hormone therapy. *Maturitas* 43, 183–194.
- Seto T.B., Taira D.A., Davis R.B., Safran C. & Phillips R.S. (1996) Effect of physician gender on the prescription of estrogen replacement therapy. *Journal of General Internal Medicine* 11, 197–203.
- Sigurdardóttir E.S., Gudmundsdóttir G.E. & Arnardóttir H.S. (2004) *Konur og tíðabvarfahormón (Women and the Use of Hormones during Menopause)*. University of Iceland, Faculty of Nursing, Lokaverkefni til BS prófs í hjúkrunarfræði, Iceland.
- Sogaard A.J., Tollan A., Berntsen G.K., Fonnebo V. & Magnus J.H. (2000) Hormone replacement therapy: knowledge, attitudes, self-reported use and sales figures in Nordic women. *Maturitas* 35, 201–214.
- Stampfer M.J. & Colditz G.A. (1991) Estrogen replacement therapy and coronary heart disease: a quantitative assessment of the epidemiologic evidence. *Preventive Medicine* 20, 47–63.
- Statistical Series (2004) Use of ICT and Internet by households and individuals 2004. *Statistics Iceland*, 5.
- The Icelandic Nurses' Association (1999) *Ethical Standards for Nurses*. The Icelandic Nurses' Association, Reykjavik. Retrieved from <http://hjukrun.is/?PageID=84> on 12 October 2005.
- Vilhjálmsson R. (2005) Failure to seek needed medical care: results from a national health survey of Icelanders. *Social Science and Medicine* 61, 1320–1330.
- Wagner P.J., Kuhn S., Petry L.J. & Talbert F.S. (1995) Age differences in attitudes toward menopause and estrogen replacement therapy. *Women and Health* 23, 1–16.
- Woods N.F., Saver B. & Taylor T. (1998) Attitudes toward menopause and hormone therapy among women with access to healthcare. *Menopause* 5, 178–188.
- Worcester N. (2004) Hormone replacement therapy (HRT): getting to the heart of the politics of women's health? *National Women's Studies Associations Journal* 16, 56–69.
- Writing Group for the Women's Health Initiative (2002) Risk and benefits of estrogen plus progestin in healthy postmenopausal women. *Journal of the American Medical Association* 288, 321–333.