Characteristics of women on hormone replacement therapy

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Abstract

Objectives

This article examines the use of hormone replacement therapy (HRT) among women aged 45-64 in light of their characteristics that might be related to benefits and risks associated with HRT.

Data source

The data are from the household component of the 1994/95 National Population Health Survey.

Analytical techniques

Odds ratios from multiple logistic regression were calculated to identify personal and health-related factors, measures of health care utilization, and behavioural risk factors that could be associated with HRT use.

Main results

In 1994/95, 22% of women aged 45-64 reported HRT use. Compared with older women, those who were aged 50-54 had higher odds of taking HRT. Women who reported at least one contact with a physician in the year before their interview, or who reported having had a mammogram or a blood pressure check also had high odds of using HRT. Smoking, drinking, regular exercise, contact with an alternative medicine provider, weight, and mental status were not significantly related to HRT use.

Conclusion

Women who are users of the health care system have relatively high odds of taking HRT. However, the data do not indicate that women who are in better health or who appear to have healthier lifestyles are more likely to be HRT users.

Key words

menopause, synthetic hormones, estrogen, progesterone

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Women currently experiencing symptoms of menopause and those approaching it suffer no lack of information about hormone replacement therapy (HRT). In 1996 alone, the popular press in Canada mentioned HRT 152 times,[1] an average of one reference almost every other day. The scientific literature, as referenced in MEDLINE, yielded 257 citations about HRT for that year.

The use of hormone replacement therapy is not a clear choice, in part because results from scientific studies of the risks and benefits are limited and often contradictory, especially if long-term use is considered (see *Scientific evidence*).[2] The decision to use or not to use HRT is not straightforward, so clinicians have devised guidelines to assist women in making the choice.[3-6]

The current debate about HRT is fueled by the millions of women of the baby boom generation who will begin to experience menopausal symptoms over the next decade. The debate also has philosophical and ethical dimensions. These include reservations about medicalizing a natural process (menopause) and turning it into a condition that

Methods

Data source

The data are from Statistics Canada's 1994/95 National Population Health Survey (NPHS), a longitudinal survey that measures the health status of the Canadian population. Data collection for the first wave began in June 1994 and finished in the summer of 1995.[7,8]

The target population was household residents in all provinces and territories, except persons living on Indian reserves, on Canadian Forces bases, or in some remote areas. A total of 26,430 households were selected for the survey. The final response rate was approximately 89% of households. An additional institutional component covered long-term residents of hospitals and residential care facilities. Data from the institutional component and the territories are not included in this analysis.

The household survey collects most of the information from one adult household member who is knowledgeable about the health of all members of the household. In-depth health information is also collected from a randomly selected household member. Among randomly selected respondents, the response rate was 96%. Detailed information about NPHS content and sample design has been published elsewhere.[7,8]

As part of the NPHS interview, female respondents aged 30 and over were asked: "In the past month, did you take hormones for menopause or aging symptoms?" Women who reported use of one or more such medications during the last month were asked if they had taken medications during the last two days and what type of medication they took. Those who reported taking estrogen with or without progesterone in the last two days, as well as those who reported taking hormones for menopause or aging symptoms in the past month, were classified as HRT users.

For this analysis, HRT was dichotomized as being used or not being used. The analysis is based on women aged 45-64 who responded to the in-depth interview (2,355 respondents). In 39 cases, the information was provided by proxy respondents because the selected women were not able to answer or could not be contacted. For the majority of proxy interviews (33), the women were classified as non-HRT users.

Analytical techniques

A number of personal characteristics, health care utilization measures, physical and mental health status indicators and health behaviour variables were examined (see *Definitions*). The selection of these variables was guided by findings from previous studies. Multiple logistic regression was used to identify the characteristics associated with HRT use. Table 1 lists the independent variables that were included in the model.

The multivariate analysis is based on 2,117 women aged 45-64 who reported information on all the variables selected for inclusion in the model (238 were missing information on one or more variables). Of this group, 454 (21%) were on HRT and 1,663 (79%) were not. They represented about 2,996,400 non-institutionalized women living in the 10 provinces.

Responses were weighted using the survey weights, which were normalized so that they averaged 1. Normalization of the weights does not take into account the complex multi-cluster sample design of the NPHS and produces standard errors that tend to be too small.[9-11] To address this problem, the jackknife approach for the estimation of the variance was used to calculate confidence intervals for the odds ratios of the logistic regression.[12]

Limitations

Although NPHS data are self-reported, recall of HRT use has been shown to be fairly accurate.[13] As well, recall bias should be small because respondents were asked about drug use that occurred within the past month. However, as with all self-reported data, it is not possible to determine the proportion of women who chose not to disclose their use of hormones. Information on surgical menopause and length of time on HRT, which would have refined the profile of HRT users, is not available from the NPHS.

Details about the type of therapy and the dose were not collected in the NPHS. Therefore, information on the proportion of women who use estrogen opposed with progesterone and women who only use estrogen is not available.

Many factors, notably chronic conditions, may not have contributed to the model for lack of statistical power. This is the case for diabetes, heart disease, cancer, the effects of stroke, and urinary incontinence.

The NPHS indicators were not tailored to specifically address issues related to differences between HRT users and non-users. For example, the finding that women on HRT do not appear to be in better health or have healthier lifestyles could be attributed to the lack of sensitivity of the indicators selected to measure these dimensions.

requires decades of treatment. The role of pharmaceutical companies, for whom widespread adoption of HRT could translate into sizable financial gain, has also been questioned.[14] (In 1996, 2.86 million prescriptions were written for HRT, although just under 2 million were filled, perhaps indicating some women's ambivalence about this treatment.[15]) In addition, the societal expectation that women should maintain the characteristics of youth as they grow older has been identified as a non-medical factor in the equation.

Critics caution that some of the apparently favourable effects may be related to the characteristics of women who use HRT and of those who agree to participate in HRT studies. [2,16] The majority of such research is based on epidemiological or observational studies (cohort or case-control). As a consequence, biases such as self-selection may influence the results. For example, some researchers have found HRT users to be healthier and to include mostly women who do not have a history of high blood pressure.[17,18] Thus,

Definitions

Marital status was grouped into three categories: married, previously married, and single. Women in common-law relationships or living with a partner were included in the "married" category. "Previously married" refers to those who were divorced, separated, or widowed. "Single" refers to women who never married.

Household income is a derived measure of income adequacy based on household size.

Respondents were classified as *daily smokers* if they reported that they smoked cigarettes on a daily basis.

Respondents who reported consuming alcohol in the last 12 months were classified as *regular* or *occasional drinkers*.

Regular exercise was defined as engaging 12 or more times a month in recreational physical activity that lasts more than 15 minutes. Details of the calculations to obtain average daily energy expenditure can be found in the *National Population Health Survey Overview 1994-95*.[7]

To measure the prevalence of *chronic conditions*, respondents were asked, "Do(es) ... have any of the following long-term conditions that have been diagnosed by a health professional: ...? A list was read to respondents, who were instructed to identify as many conditions as were applicable. The conditions retained for this analysis are: arthritis or rheumatism, back problems excluding arthritis, high blood pressure, migraine headaches, diabetes, heart disease, cancer, effects of stroke, and urinary incontinence. The severity of each condition was not recorded.

To assess *perceived health status,* respondents were asked, "In general, would you say your health is excellent? very good? good? fair? poor?" For this analysis, responses were grouped into three categories: poor or fair, good or very good, and excellent.

Body mass index (kg/m^2) was calculated from self-reported height and weight. Respondents with a score of 25 or more were considered *overweight*.

Depression was assessed using the methodology of Kessler et al.,[19] with a subset of questions from the Composite International Diagnostic Interview. These questions cover a cluster of symptoms for depressive disorder, which are listed in the *Diagnostic and Statistical Manual of Mental Disorders*.[20] Responses to these questions are scored and transformed into an estimate of the probability of a diagnosis of a major depressive episode (MDE). If this estimate is 0.9 or greater, that is, if there is a 90% certainty of a diagnosis, then the respondent is considered to have experienced an MDE in the previous 12 months.

To assess *thinking ability*, respondents were asked: "How would you describe your usual ability to think and solve day to day problems?" They could choose one of the following: "able to think clearly and solve problems," "having a little difficulty," " having some difficulty," having a great deal of difficulty," or "unable to think or solve problems." Only those who reported that they were able to think clearly and solve problems were classified as usually having good thinking ability.

To assess *memory,* respondents were asked: "How would you describe your usual ability to remember things?" Four response options were presented: "able to remember most things," "somewhat forgetful," "very forgetful," and "unable to remember anything at all." Those who reported that they were able to remember most things were classified as usually having a good memory.

Scientific evidence

In addition to relieving the symptoms of menopause (hot flashes, vaginal dryness, insomnia, irritability, lack of energy, and feelings of depression), hormone replacement therapy has a number of other health benefits. For instance, it has been shown to protect against both heart disease and osteoporosis, the prevalence of which rises dramatically among postmenopausal women. However, the results of studies of HRT have, at times, been contradictory.

Comprehensive literature reviews indicate an estimated 35% to 50% decreased risk of coronary heart disease among postmenopausal women taking estrogen.[21] Clinical research has demonstrated that orally administered estrogen, with or without progesterone, lowers low-density lipoprotein (LDL or "bad" cholesterol) and increases the levels of high-density lipoprotein (HDL or "good" cholesterol).[22] Women with low HDL levels are at higher risk of heart disease. Estrogen may also promote vessel relaxation under pressure and the formation of new blood vessels.[22,23]

Osteoporosis is a loss of bone density and is related to the high incidence of hip fracture in older women.[24-26] Osteoporotic fractures are an important cause of death, with an estimated one in five women who fracture a hip dying in the year after the fracture.[25] Results of a meta-analysis show consistent evidence of the beneficial effects of estrogen in reducing the risk of hip fracture.[24] In fact, HRT is the preferred treatment for osteoporosis, with other regimes being considered only when the prescribed HRT fails to work or when a patient's health profile or preferences dictate an alternate approach.

According to a recent American study, HRT would lower the risk of osteoarthritis of the hip in white women aged 65 and older, potentially reducing the need for surgery and rehabilitation.[27]

HRT seems to help preserve not only bones, but also skin elasticity, by slowing the breakdown of collagen. Losing collagen makes skin thinner, drier, less resilient and more prone to wrinkles.[24]

Finally, HRT may have positive effects on the brain.[28] It has been associated with verbal memory in older women.[29] Improvements in memory, alertness, sleep patterns and social behaviour of women with mild or moderate symptoms of Alzheimer disease have also been reported.[30,31]

But HRT is not without a downside, including a slightly higher risk of breast cancer.[24,32] HRT may also affect the results of mammography, thus raising anxiety among women with false positive results. In one study, HRT users aged 50 and over were more likely than nonusers to get false positive mammograms.[33]

Moreover, the health effects of long-term HRT are not well known.[2,24,32,34] Few studies have examined the effect of regular and prolonged use of estrogen with progesterone, but information on the effect of long-term use of estrogen alone is available.[2,34] Long-term use (11 years or more) of estrogen replacement therapy (ERT) yielded a 70% increased risk of mortality from ovarian cancer.[35] Other research has shown the risk of breast cancer to have increased after five to nine years of ERT use and to almost double for women aged 60 and over.[36]

A review of the literature found extensive and consistent evidence in support of estrogen therapy or "unopposed" therapy decreasing the risk of coronary heart disease and hip fracture, but long-term use increases the risk of endometrial cancer, and weak evidence substantiates a small increase in the risk of breast cancer.[24] Estrogen combined with a progestin-"opposed" estrogen reduces the risk of endometrial cancer, but the decreased risk of coronary heart disease obtained with the unopposed therapy is probably negated and there is an increased risk for breast cancer. However, these authors caution that their conclusions are based on data abstracted from observational studies and that the effect of the combined therapy of estrogen plus a progestin has not been adequately studied.

Other researchers anticipate gains in life expectancy of up to three years, depending on a woman's risk for coronary heart disease, hip fracture, breast cancer and endometrial cancer.[37] Their conclusion is that the beneficial effects of HRT with regard to coronary heart disease are impressive, and that most women who have just completed menopause should benefit from it. Women not likely to benefit from this therapy are those with no risk factors for coronary heart disease or hip fracture or with two first-degree relatives with breast cancer. These researchers, too, caution that the data used to model gains in life expectancy are from observational studies.

In fact, most of the research on the effects of HRT is based on observational studies. That is, a group of women taking HRT are studied for a number of years to determine whether they derive any health benefits. The problem with such an approach is that it does not indicate whether HRT lowers the risk of, for example, heart disease, or whether the type of woman who has the lowest risk of heart disease is also the type likely to use HRT.

Thus, despite all the research, the use of HRT is not an obvious decision. On balance, short-term use does not appear to increase risks, and that is why it has been recommended that HRT be offered to post-menopausal women.[38,39] However, new drugs continue to be introduced. Selective estrogen-receptor modulators that reduce coronary heart disease, strengthen bones, and do not increase the risk of breast and uterine cancer may drastically simplify that choice.[40]

HRT use may be more prevalent among healthy and health-conscious women who adopt it as part of a larger disease prevention effort. Such women may be better-educated, less likely to smoke, and more likely to exercise regularly.[16,41]

This article is the first national report of HRT use among Canadian women. It draws upon data from the National Population Health Survey (NPHS) to examine factors associated with HRT use (see *Methods*). The analysis focuses on women aged 45-64, the age group most likely to be examining the pros and cons of hormone replacement therapy.

The prescription of hormones can vary. Some women are prescribed estrogen only or "unopposed" estrogen (ERT). Others are prescribed estrogen along with a progestin agent, referred to as "opposed" estrogen (HRT). For simplicity, the term HRT is employed in this article to refer to all hormones, opposed or unopposed, that respondents reported they were taking for menopausal symptoms.

HRT use peaks among women in their fifties

Despite inconsistent scientific evidence, a large number of Canadian women have decided to use HRT. According to the 1994/95 NPHS, 22% of women aged 45-64—an estimated 648,000—reported using some form of hormone replacement therapy for menopause or aging symptoms in the month before they were interviewed. Use was highest among those aged 50-54 (33%), a time when symptoms of menopause are likely to be most numerous and intense (Chart 1). At older and younger ages, smaller proportions of women were using HRT.

When other factors that might affect HRT use were accounted for, the odds that women in their early fifties would use it were significantly higher than the odds for women aged 60-64 (odds ratio 2.3) (Table 1). Older women may discontinue HRT when symptoms are less bothersome or because of the fear of an increased risk of cancer and other side effects associated with long-term use, or they may never have used HRT. However, it is not possible with NPHS data to assess whether lower HRT use among older women results from their refusing the therapy, discontinuing it, or not being offered it by their physicians.

Race a significant factor

Several demographic and socioeconomic variables that might be expected to be associated with HRT use had little bearing on whether or not women used it. HRT use was highest—24%—among those who were previously married (widowed, divorced or separated), followed by married (22%), and then single (18%) women (Table 2). But controlling for other variables, the odds that married or previously married women would use HRT were no greater than for single women.

As well, HRT use appeared to be highest among women with some postsecondary education (26%) and among those from households with higher incomes (24%). But again, these differences were not significant.

By contrast, race was significantly related to the use of hormones. The odds that white women were HRT users were about three times the odds for women of other races (odds ratio 2.9).

Chart 1
Rates of HRT use, by age group, women aged 45-64, Canada, 1994/95
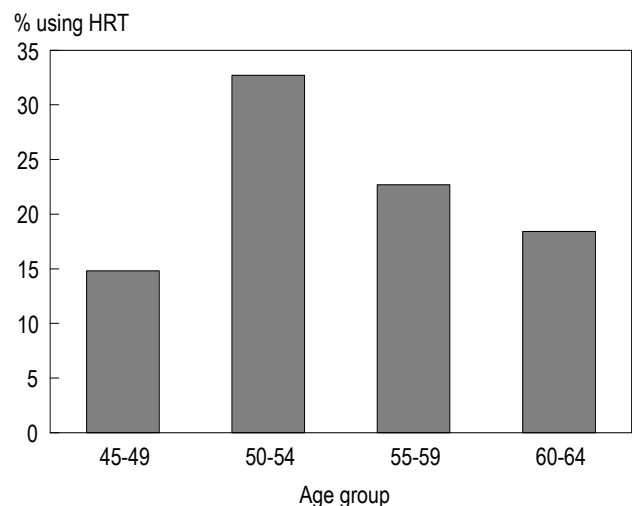
Data source: National Population Health Survey, 1994/95

Table 1
Odds ratios for use of hormone replacement therapy, women aged 45-64, Canada, 1994/95

Independent variable	Odds ratio	95% confidence interval	Independent variable	Odds ratio	95% confidence interval	Independent variable	Odds ratio	95% confidence interval
Personal characteristics			Pap test in last year			High blood pressure		
Age group			No†	1.0	...	No†	1.0	...
45-49	.7	.5, 1.2	Yes	1.0	.7, 1.4	Yes	.8	.6, 1.2
50-54	2.3*	1.5, 3.6	Mammogram in last two years			Migraine headaches		
55-59	1.4	.9, 2.1	No†	1.0	...	No†	1.0	...
60-64†	1.0	...	Yes	1.6*	1.1, 2.2	Yes	1.5	1.0, 2.2
Marital status			Blood pressure check in last year			Diabetes		
Married	1.3	.7, 2.3	No†	1.0	...	No†	1.0	...
Previously married	1.4	.7, 2.7	Yes	2.5*	1.4, 4.3	Yes	.8	.3, 2.1
Single†	1.0	...				Heart disease		
Educational attainment			**Health behaviours**			No†	1.0	...
Less than high school graduation†	1.0	...	Daily smoker			Yes	.7	.4, 1.4
High school graduate	1.0	.6, 1.6	No†	.9	.6, 1.3	Cancer		
Some postsecondary	1.3	.9, 1.9	Yes	1.0	...	No†	1.0	...
Postsecondary graduate	1.0	.7, 1.5	Regular or occasional drinker			Yes	.4	.2, 1.0
Household income			No	.8	.5, 1.2	Effects of stroke		
Low†	1.0	...	Yes†	1.0	...	No†	1.0	...
Middle	.8	.4, 1.4	Regular exercise			Yes	1.1	.2, 5.2
High	1.0	.5, 1.8	No†	1.0	...	Urinary incontinence		
Canadian-born			Yes	.9	.7, 1.3	No†	1.0	...
No†	1.0	...	Overweight			Yes	1.2	.5, 3.2
Yes	1.0	.7, 1.5	Yes†	1.0	...			
Race			No	1.3	.9, 1.7	**Mental health status**		
White	2.9*	1.1, 7.9				Depressed		
Other†	1.0	...	**Physical health status**			No†	1.0	...
Worked in last year			Perceived health status			Yes	1.0	.6, 1.9
No†	1.0	...	Poor or fair	1.4	.5, 3.7	Ability to think usually good		
Yes	.8	.6, 1.2	Good or very good	1.5	.5, 4.1	No†	1.0	...
			Excellent†	1.0	...	Yes	.9	.6, 1.5
Health care utilization			Broken bone in last year			Ability to remember usually good		
Talked to medical doctor in last year			No	.9	.3, 3.0	No†	1.0	...
No†	1.0	...	Yes†	1.0	...	Yes	1.1	.7, 1.5
Yes	2.1*	1.1, 4.1	Arthritis or rheumatism			Used anti-depressants in last two days		
Talked to alternative health care provider			No†	1.0	...	No†	1.0	...
No†	1.0	...	Yes	1.2	.9, 1.7	Yes	2.2*	1.2, 4.1
Yes	1.7	1.0, 2.7	Back problems excluding arthritis					
			No†	1.0	...			
			Yes	1.5*	1.1, 2.2			

Notes: *Odds ratios are from a multivariate logistic regression. Confidence intervals were estimated using the jackknife approach to the estimation of the variance. The analysis is based on 2,117 women aged 45-64; 238 female respondents in this age range (10%) who were missing information on one or more of the variables included in the analysis were excluded.*
† Reference category, for which the odds ratio is 1.0
... Figures not applicable
* p ≤ 0.05

Users of health services

The women taking HRT tended to have used other health services. They were likely to have consulted physicians in the previous year and to report having had medical tests such as mammograms and blood pressure checks.

Physicians do not usually write prescriptions for HRT that extend beyond a year. As well, a yearly check-up is recommended to monitor women on HRT, even those who are in good health. Therefore, it is not surprising that the odds of women who had contacted a medical doctor in the previous year being HRT users were double those of women who had not had such contact (odds ratio 2.1).

The odds that women who had had a mammogram in the past two years were HRT users were significantly higher (odds ratio 1.6) than those of women who had not. Because of the possibility that HRT can increase the risk of breast cancer, physicians who prescribe it are also likely to refer

Table 2

Rates of use of hormone replacement therapy, women aged 45-64, Canada, 1994/95

Variables	% on HRT	Variables	% on HRT	Variables	% on HRT
Personal characteristics		Pap test in last year		High blood pressure	
Age group		No	17.6	No	21.9
45-49	14.8	Yes	27.4	Yes	21.1
50-54	32.6	Mammogram in last two years		Migraine headaches	
55-59	22.7	No	15.0	No	20.6
60-64	18.4	Yes	27.6	Yes	31.2
Marital status		Blood pressure check in last year		Diabetes	
Married	21.6	No	8.5	No	22.0
Previously married	23.7	Yes	25.6	Yes	--
Single	18.1			Heart disease	
Educational attainment		**Health behaviours**		No	21.8
Less than high school graduation	20.2	Daily smoker		Yes	--
High school graduate	19.8	No	21.6	Cancer	
Some postsecondary	26.3	Yes	22.6	No	22.0
Postsecondary graduate	21.4	Regular or occasional drinker		Yes	--
Household income		No	17.8	Effects of stroke	
Low	22.4	Yes	23.2	No	21.8
Middle	19.2	Regular exercise		Yes	--
High	24.0	No	21.3	Urinary incontinence	
Canadian-born		Yes	22.5	No	21.7
No	19.1	Overweight		Yes	--
Yes	22.5	Yes	20.8		
Race		No	23.1	**Mental health status**	
White	22.8			Depressed	
Other	--	**Physical health status**		No	21.5
Worked in last year		Perceived health status		Yes	28.4
No	22.0	Poor or fair	13.9	Ability to think usually good	
Yes	21.5	Good or very good	21.6	No	23.6
		Excellent	24.4	Yes	21.6
Health care utilization		Broken bone in last year		Ability to remember usually good	
Talked to medical doctor in last year		No	21.7	No	21.5
No	--	Yes	--	Yes	21.9
Yes	24.5	Arthritis or rheumatism		Used anti-depressants in last two days	
Talked to alternative health care provider		No	19.8	No	20.7
No	20.7	Yes	28.0	Yes	45.6
Yes	33.7	Back problems excluding arthritis			
		No	20.0		
		Yes	29.9		

Data source: *National Population Health Survey, 1994/95*
Note: *The sample of 2,355 was weighted to represent 2,996,400 non-institutionalized women aged 45-64.*
-- Amount too small to be expressed

patients for mammography. In addition, the risk of breast cancer is often mentioned in the popular media, so women using HRT may either request that their doctor arrange for a mammogram or get one through the organized breast screening program in their province.[42,43]

Similarly, HRT use was high among women who had had their blood pressure checked in the previous year. The odds that women who had had a blood pressure check would be HRT users were more than double those of women who had not (odds ratio 2.5). This is not surprising, since blood pressure monitoring is almost always part of a yearly check-up.

By contrast, HRT use was not associated with Pap smears. The odds that a woman who had had a Pap smear in the previous year would be an HRT user were not significantly different from those for a woman who had not. However, the recommended screening frequency is every three years until age 69 (after two normal smears),[44] so it is less likely that women on HRT would have had a recent Pap smear than other medical tests.

Despite attention that the mass media are currently devoting to the use of natural remedies to manage menopause symptoms, women who had contacted an alternative health care practitioner in the past year were no more or less likely to be HRT users than women who had not done so.

No significant health differences

NPHS data do not indicate that women who are healthier or have a more healthy lifestyle have high odds of using HRT.

Women aged 45-64 who perceived their health as less than excellent were no less likely than women with a more favourable self-assessment to use HRT. Consistent with this, the presence of a number of chronic conditions was not significantly associated with HRT use. Women with arthritis/rheumatism, high blood pressure, migraine headaches, diabetes, heart disease, cancer, the effects of stroke, and urinary incontinence were no less likely than women free of these conditions to use HRT. In some instances, however, the number of women using HRT who reported a chronic condition was so small

that differences may not have been detected because of a lack of statistical power.

The only chronic condition significantly associated with HRT use was non-arthritic back problems (odds ratio 1.5). This could be related to the loss of bone density among women with osteoporosis, who may benefit from hormone use.

As well as physical health, women's mental and emotional status bore little relationship to whether they used HRT. The association between HRT use and thinking ability, memory and depression was not significant. However, a high percentage of women who reported taking anti-depressants in the two days before their interview (46%) were also on HRT. The odds that women taking anti-depressants would use HRT were more than double those for women not taking anti-depressants (odds ratio 2.2). To some extent, the lack of a significant relationship between having suffered depression and HRT use may reflect this association between the use of anti-depressants and HRT.

Lifestyle not a significant factor

Differences in hormone use were not associated with variables that measure various health behaviours such as smoking, drinking, and exercise. Women who smoke are at greater risk for osteoporosis, heart disease and cerebrovascular disease, and they may be prescribed HRT to reduce the risk. However, the percentage of daily smokers reporting HRT use was virtually the same as that of occasional and non-smokers: 23% and 22%. Among regular and occasional drinkers, 23% reported HRT use; the proportion dropped to 18% among non-drinkers, but this did not yield statistically significant differences between the two groups in the odds that they would use HRT. The percentages of HRT users among women who did and did not report regular exercise were almost the same. Likewise, being overweight was not associated with hormone use.

Concluding remarks

In addition to relieving many of the symptoms of menopause, HRT lowers the risk of cardiac

problems and osteoporosis, and maintains a "younger look" in aging women.

Previous studies have suggested that the apparently beneficial results of HRT may be attributable to better health among women who are taking these medications. However, results of the National Population Survey do not support this premise. HRT users do not appear to be healthier than non-users. In a multivariate analysis, women with a variety of chronic conditions were no more or less likely to be on HRT than women who were not affected. Nor was HRT significantly associated with self-assessed health status. Similarly, lifestyle bore little relationship to HRT use: the relationships between smoking, drinking and regular exercise and HRT use were not significant.

Earlier research did, however, find HRT users to be health-conscious, a finding supported by the NPHS. In 1994/95, HRT users were concerned about their health to the extent that they had recently consulted physicians and had mammograms and blood pressure checks. Nonetheless, it is also possible that because some women agree or choose to use HRT, of necessity, they take better care of themselves. That is, they must visit their doctor, have their blood pressure checked, and perhaps even have a mammogram in order to have their prescriptions renewed for another year.

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