



**Karolinska
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Women's Lifestyle and Health

The Norwegian-Swedish cohort study

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Two separate but common projects: purposes



Norway

- Title: The Norwegian Women and Cancer Study (NOWAC)
- Purpose: To create a large prospective cohort designed to study the relationship between internal and external hormones and female cancer with focus on breast cancer

Sweden

- Title: Women's Lifestyle and Health (WLH)
- Purpose: To create a large prospective cohort designed to study lifestyle factors (OC, HRT, dietary habits, ect.) and cancer, cardiovascular diseases and chronic diseases in young women

About the projects

Norway

- Start year: 1991;
cohort extension: 2003-2006
- Age of participants: 30-70 years
(45-60 in the extended cohort)
- Data collection: Mailed
questionnaires:
 - first mailing: 1991-1997 (photo
booklets of OC and HRT)
 - second mailing: 1998-2002
(diet- a part of EPIC study and
sun habits)
 - third mailing: 2004-2005
(women collected in 1991-1995;
validation)

Sweden

- Start year: 1991;
- Age of participants: 30-49 years
- Data collection: Mailed
questionnaires:
 - first mailing: 1991 (lifestyle
factors: oral contraceptive use,
diet, UV light exposure,
reproductive factors and familial
occurrence of cancer)
 - second mailing: 2003 (update
on lifestyle changes)

Data

Norway

- First mailing 1991-1997:
 - 179 387 women invited
 - 102 540 (57%) women returned
- Cohort extension 2003/04 (+2005/06*)
 - 60 000 women invited (+ 60 000*)
 - *invited by Norway Statistics
 - 28 000 women responded
- Second mailing 1998-2002:
 - All women invited
 - 80 693 women replied; of these
 - 37 226 constitute EPIC
- Third mailing 2004-2005:
 - Participants from 1991-1995 invited
 - 45 827 women returned questionnaires

Sweden

- First mailing 1991:
 - 96 000 women invited
 - 49 259 women returned completed questionnaires
- Second mailing in 2003
- The follow up achieved from linkages with national wide health registers using the individually unique national registration number assigned to all Swedish residents

Collaboration: the joined study

- The common name: Women's Lifestyle and Health Study (WLH)
- Participants: Overall 104 000 women
 - 47 000 women from the Swedish WLH cohort and
 - 57 000 women from the Norwegian NOWAC cohort
- Age of participants: born 1943-1962, 30-49 years
- Enrolment: 1991/1992
- Responsible of analysis of the join project since 1999:



Funds



Norway

- The Norwegian Cancer Society
- The Norwegian Research Council
- National Cancer Institute, US

Sweden

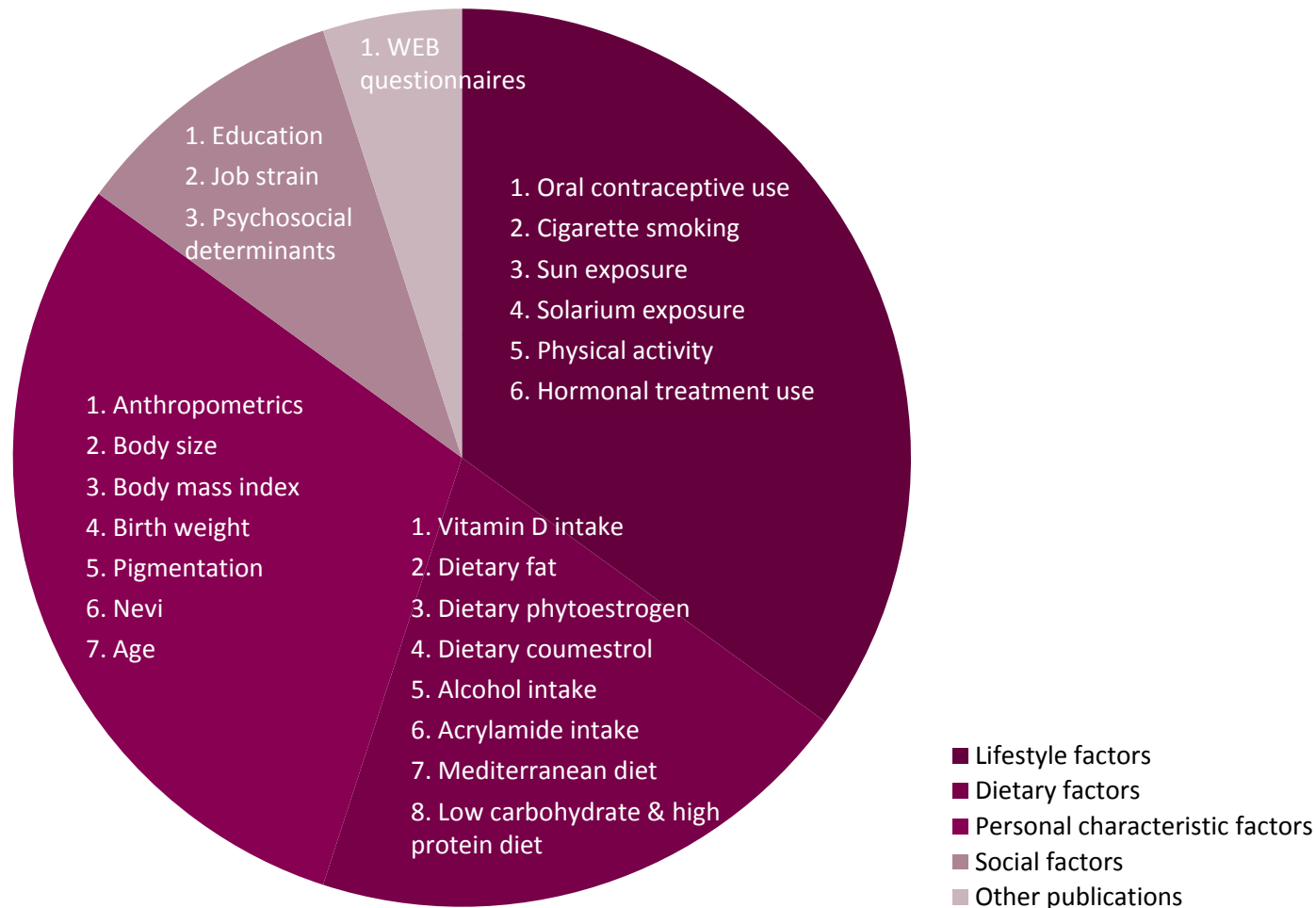
- Pharmaceutical companies (initiation of the study)
- Swedish Cancer Society (computerization & analysis in ongoing studies)
- Swedish Research Council (new questionnaire study)

Publications of Women's Lifestyle and Health study: number of articles

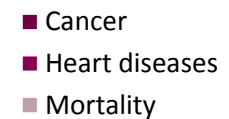
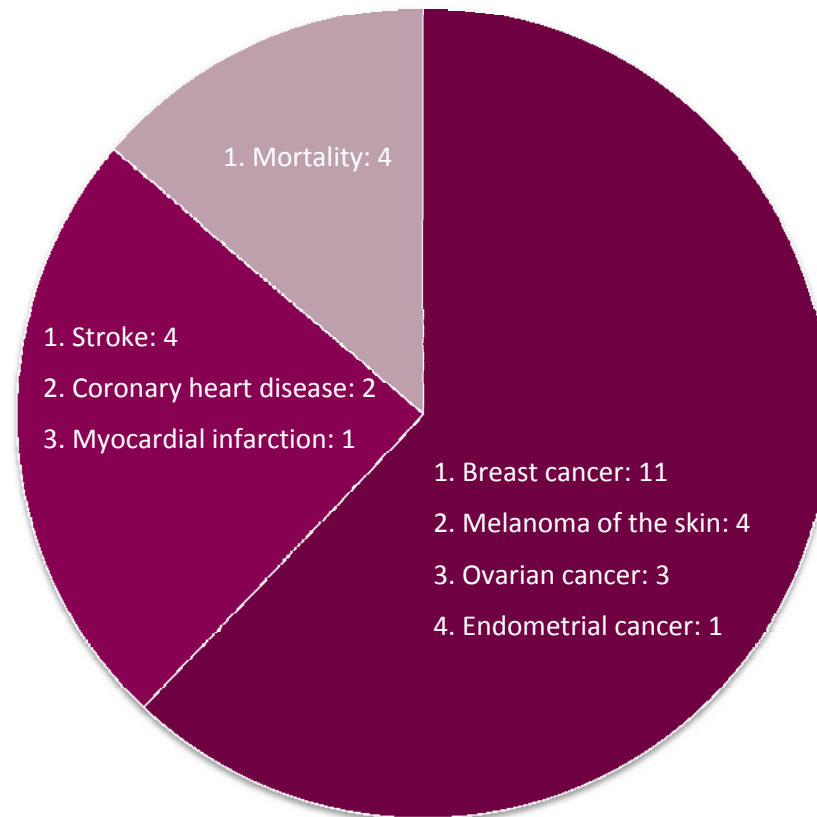
Year of publication	Number of papers
1996	1
1998	1
2002	1
2003	1
2004	3 (4)*
2005	5
2006	5
2007	7
2008	4
2009	3
2010	1
Submitted	2
Total published	32 (33)*

*Response

Publications of WLH study: topics



Publications of WLH study: diseases



Publications WLH: diseases and topics

Lifestyle factors	Dietary factors	Personal characteristic factors	Social factors	Other publications
Oral contraceptive use	D vitamin intake	Anthropometrics	Education	WEB based questionnaires
- breast cancer	- breast cancer	- coronary heart disease	- breast cancer	- feasibility in large studies
- ovarian cancer	Dietary fat	Body size	Job strain	- optimizing the design
- reproductive history	- breast cancer	- breast cancer	- breast cancer	
- myocardial Infarction	Dietary phytoestrogen	- stroke	Psychosocial determinants	
- stroke	- breast cancer	Body mass index	- coronary heart disease	
Smoking	Dietary coumestrol	- mortality	- stroke	
- breast cancer	- breast cancer	Birth weight		
- ovarian cancer	Alcohol intake	- breast cancer		
- stroke	- stroke	- endometrial cancer		
Sun exposure	Acrylamide intake	Pigmentation		
- melanoma	- breast cancer	- melanoma		
- cutaneous malignant melanoma	Mediterranean diet	- cutaneous malignant melanoma		
Solarium exposure	- mortality	Nevi/ Atypical nevi		
- melanoma	Low carbohydrate & high protein diet	- factors for		
Physical activity	- mortality	- self examination		
- breast cancer		- melanoma		
- mortality		Age		
Hormonal treatment use		- melanoma		
- evaluation of the treatment				

Publications based on datasources from

Swedish data only

- 7 cardiovascular diseases
- 5 breast cancer
- 2 skin cancer/ nevi
- 2 mortality
- 2 technical- WEB questionnaires
- 1 endometrial cancer
- 1 hormonal treatment evaluation

Norwegian-Swedish data

- 5 breast cancer
- 3 ovarian cancer
- 2 (3) melanoma
- 2 mortality

Publications of Women's Lifestyle and Health study: journals

Journal	Number of publications
Cancer Epidemiology Biomarkers Prevention (CEBP)	7
British Journal of Cancer (BJC)	3
Epidemiology	3
European Journal of Epidemiology (EJE)	3
International Journal of Cancer (IJC)	3
Journal of Internal Medicine (JIM)	3
Stroke	2
Journal National Cancer Institute (JNCI)	1(2)*
American Journal of Epidemiology (AJE)	1
British Journal of Nutrition (BJN)	1
Cerebrovascular Diseases	1
Climacteric	1
Fertility Sterility	1
Journal of American Medical Association (JAMA)	1
Journal of Nutrition	1
Total published	32 (33)*

*Response

Common variables: comparison WLH study with the Japanese and the Norwegian cohorts

Variables	Women's Lifestyle and Health	Japanese cohort	Norwegian cohort
Body size	Current measurements and weight changes since age 18 years	Current measurements and weight changes since age 20 years	Current measurements and weight changes since age 18 years
Menstruation history	Start, end, cycle length, time to become regular cycle	Start, end, cycle length, cycle appearance before menopause	Start, end, cycle length, time to become regular cycle
Hormone use	OC and HRT use	Type of hormones not specified	OC and HRT use
Cigarette smoking	Current, former (number cigarettes per day) and passive during adolescence	Current, former (number cigarettes per day), passive if more than 10 years	Current, former (number cigarettes per day), passive during adolescence
Alcohol consumption	Frequency, volume, types of alcoholic beverages (some other than in Japanese study)	Frequency, volume, types of alcoholic beverages (some other than in WLH study); Alcohol drinking and smoking together	Frequency, volume, types of alcoholic beverages (some other than in Japanese study)
Pregnancy	Age at first pregnancy and delivery, number of pregnancies and deliveries, complications and abortions, breastfeeding	Age at first pregnancy and delivery, number of pregnancies and deliveries, breastfeeding	Number of pregnancies and deliveries, breastfeeding
Physical activity	Former, current, intensity	Frequency	Former, current, intensity in different year sessions
Work situation, education	Types of work and stress level; Years of education	Type of work, number of years employed, occupational exposures to different materials; Type of school finished	Types of work and stress level; Years of education
Mental health	Relations to other people; attitudes and feelings; psychical activity	Self-described personality	Relations to other people
Diseases	Self assessment of health status, cancer at different sites, heart diseases, diabetes, allergies, rheumatic diseases, multiple sclerosis	Self assessment of health status, cancer at different sites, heart diseases, diabetes, allergies, liver and kidney diseases	Self assessment of health, cancer at different sites, heart diseases, diabetes, blood pressure, mental diseases and depressions
Family history	Cancer: breast, gastrointestinal, uterine, melanoma, other	Cancer at different sites, heart diseases, stroke, hypertension, diabetes, hepatitis, liver cirrhosis, gastric diseases	Breast cancer in the relatives

Ongoing research plan

Submitted manuscripts

- Fatty fish consumption and psychotic-like disorders
- Solar exposure and non-Hodgkin lymphoma

Ongoing research plan

Ongoing analysis

- Solar exposure and skin cancer
- Phytoestrogens and ovarian cancer
- Coffee consumption and endometrial cancer
- Fruits and vegetables consumption and risk to cancer (total and several sub sites)
- Atkin`s (low carbohydrate/high protein) diet and incidence of cardiovascular diseases
- Allergy and breast cancer
- Ultraviolet exposure and overall mortality
- Ultraviolet exposure and cancer incidence (several sites)
- Ultraviolet exposure and cardiovascular diseases
- Overall effect of alcohol consumption on mortality (risk/benefit analysis)
- Smoking impact on overall mortality and diseases in Scandinavian women

Thank you

