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ORIGINAL REPORT

Change in Working Time in a Population-Based Cohort of Patients With Breast Cancer

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A B S T R A C T

Purpose
We examined changes in working time 16 months after a breast cancer diagnosis and identified factors associated with job discontinuation and/or decreased working time.

Patients and Methods
This was a population-based cohort study with 735 patients identified in the Regional Breast Cancer Quality Register of Central Sweden. The study sample consisted of 505 women (age < 63 years at diagnosis) who completed questionnaires at baseline and at follow-up (on average 4 and 16 months after diagnosis, respectively). Clinical register data and questionnaire data on sociodemographic factors were obtained at baseline. Self-reported work-related data were obtained at follow-up. Odds ratios were estimated by using logistic regression models.

Results
Compared with prediagnosis working time, 72% reported no change in working time, 2% reported an increase, 15% reported a decrease, and 11% did not work at follow-up. Chemotherapy increased the likelihood (odds ratio [OR], 2.45; 95% CI, 1.38 to 4.34) of job discontinuation/decreased working time. Among chemotherapy recipients, associated factors included full-time work prediagnosis (OR, 3.25; 95% CI, 1.51 to 7.01), cancer-related work limitations (OR, 5.26; 95% CI, 2.30 to 12.03), and less value attached to work (OR, 3.69; 95% CI, 1.80 to 7.54). In the nonchemotherapy group, older age (OR, 1.09; 95% CI, 1.02 to 1.17) and less value attached to work (OR, 5.00; 95% CI, 2.01 to 12.45) were associated with the outcome.

Conclusion
The majority of women treated for breast cancer returned to their prediagnosis working time. Chemotherapy and cancer-related work limitations are important factors to take into account in identifying women in need of support. Moreover, it is important to consider the woman's own valuation of labor market participation.

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INTRODUCTION

Breast cancer is the most common cancer among women worldwide.[1] Survival rates are increasing,[2] which poses important questions concerning recovery following a breast cancer diagnosis, including returning to work.

A majority of women treated for breast cancer return to work[3-6] and do so earlier than other patients with cancer.[7,8] Nevertheless, compared with women from the general population, women treated for breast cancer have a higher risk of sickness absence[9-11] or unemployment.[12] Thus, it is important to gain further insight into the return-to-work process, including changes in working time.

Studies on factors associated with a negative work outcome are of interest to identify women in need of support. While young women treated for breast cancer (age younger than 50 years) are more likely to prolong absenteeism,[13,14] older women are more likely to stop working.[5,6,15] Adjuvant therapy, in particular chemotherapy,[3,4,9,13] has been reported to be associated with negative work outcomes. New chemotherapy regimens have played a significant role in increasing breast cancer survival rates but may lead to overtreatment in many patients.[16] Increased knowledge on how work resumption may be affected by the current chemotherapy regimens is needed. In addition, treatment-related adverse effects and poorer functioning have been suggested to have an impact on the work situation, but few studies have assessed these aspects.[17-19]

Previous findings regarding the influence of sociodemographic factors on the work situation among women with breast cancer have been contradictory. Some studies indicate that factors such as

low education[9,15] and low income[6] are related to lost work productivity, whereas other studies report no such associations.[3-5,13] Moreover, an unsupportive work environment,[4,5,15] such as employer discrimination and lack of support from co-workers, appears to negatively influence work outcomes. Furthermore, although return to work has been reported to be important for maintaining a sense of normalcy and control, for some women, not returning to work may be the optimal outcome.[19,20] Thus, the value attached to work should be considered as an important covariate but has rarely been accounted for.[6]

The aim of this study was three-fold: (1) to examine occupational status in a population-based cohort of women 16 months after a breast cancer diagnosis compared with normative data, (2) to examine changes in working time after a breast cancer diagnosis, and (3) to identify factors associated with job discontinuation or a decrease in working time.

PATIENTS AND METHODS

Study Design

This population-based cohort study included patients registered in the National Breast Cancer Quality Register of Sweden, administered by six regional cancer centers. The register in the Uppsala-Örebro Region includes an estimated 97% to 100% of all incident cases of breast cancer in the region,[21] which includes a population of approximately two million people.

Study Population

The study was part of a larger project that included all patients with breast cancer in the Uppsala-Örebro Region.[22] Eligibility criteria for this study were primary breast cancer diagnosed between March 1, 2007, and July 31, 2008, and age younger than 63 years at diagnosis. This age limit was set because of the aim of the larger cohort study, which was to investigate return to work up to 3 years postdiagnosis among women younger than age 65 years (Swedish mean for old-age retirement[23]). A total of 986 women met the eligibility criteria. Because of registration time lags at the clinics (reported to the Register later than August 31, 2008), 735 women were approached, and 76% (n = 561) of them responded to the baseline questionnaire. Among these, 92% (n = 515) participated at follow-up. The final study sample consisted of 505 women (90%; Fig 1).

Procedure

Incident cases of breast cancer were identified during monthly searches of the Regional Breast Cancer Quality Register followed by verification of vital status in the National Population Register. Eligible women received a questionnaire via postal mail and written information about the study at baseline and follow-up. Returning completed questionnaires was regarded as having given informed consent. The baseline questionnaires were completed within an average of 4 months (range, 1 to 8 months) postdiagnosis, and the follow-up questionnaires were completed within an average of 16 months (range, 13 to 23 months) postdiagnosis. The average time interval between the two inquiries was 13 months (range, 8 to 20 months). A maximum of two reminders were sent within 2 months of every inquiry. The study was approved by the Regional Ethical Review Board in Uppsala.

Data Collection

Current occupational status was based on questionnaire data obtained at follow-up. Participants were asked to state their current status in amount of time (0% to 100%), with the following response alternatives: employed, student, unemployed, sick leave, disability pension, retirement pension, homemaking, and other.

Change in working time was assessed by using information on prediagnosis and current working time (0% to 100%), both obtained at follow-up. Working time was categorized into 0%, 1% to 24%, 25% to 49%, 50% to 74%, 75% to 99%, and 100% based on the Swedish regulations on sick ab-
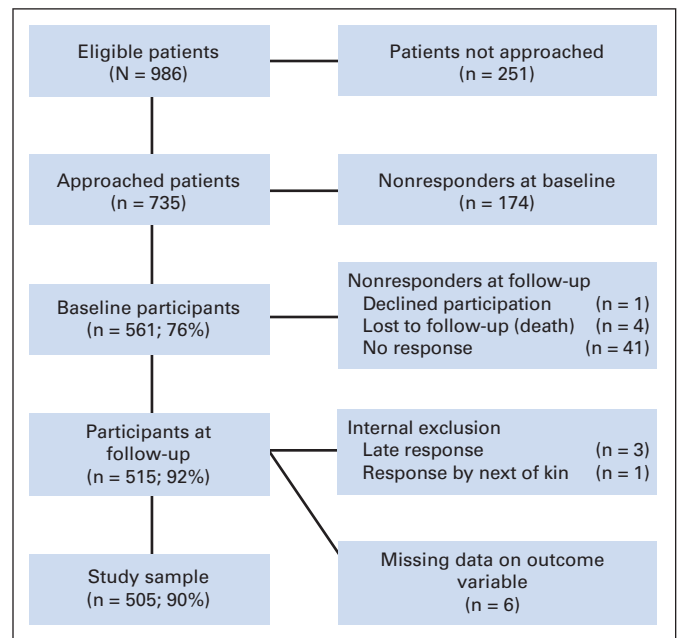

Fig 1. Flow chart of a population-based cohort study of women with breast cancer in Sweden.

sence.[24] In the descriptive analyses, change in working time was categorized as either job discontinuation or as a decrease, increase, or no change in working time. In the multivariate analyses, change in working time was dichotomized to increase cell count (job discontinuation/decreased working time, no change/increased working time).

Explanatory Variables

Clinical data were obtained from the Regional Breast Cancer Quality Register by using information on age at diagnosis; mastectomy (yes, no); type of planned adjuvant therapy, including radiation, chemotherapy, endocrine and antibody therapy (yes, no); distant metastases at diagnosis (yes, no); and recurrence/new breast cancer diagnosis during follow-up (yes, no). Age was kept as a continuous variable and categorized ($\leq$ 39, 40 to 49, 50 to 59, $\geq$ 60 years) on the basis of previous research.[6,13]

Time between diagnosis (date of histopathologic report) and follow-up was calculated from the date of questionnaire response and assessed as number of months. The European Organisation for Research and Treatment of Cancer Quality-of-Life Questionnaire C-30 (EORTC QLQ-C30)[25] was administered at baseline. On the basis of previous research,[17-19,26] the physical ($<$ 86.7, $\geq$ 86.7), emotional ($<$ 75.0, $\geq$ 75.0), and cognitive ($<$ 83.3, $\geq$ 83.3) functioning and fatigue ($\leq$ 33.3, $>$ 33.3) subscales were included in this study and were dichotomized by the medians. Baseline comorbidity was assessed by asking whether the participant had received treatment for any one of 21 common conditions (eg, high blood pressure or thyroid dysfunction) during the past year. Having at least two comorbidities has been reported to be associated with poorer health-related quality of life (HRQoL),[22] and was the reason for making a dichotomization (less than two, at least two comorbidities).

Sociodemographic factors obtained at baseline included marital status (married/cohabiting, single/living apart), children (yes, no), perceived social support (yes, no), and education (university level, lower education). Perceived financial situation was assessed by using an 11-point numerical scale (0, worst imaginable; 10, best imaginable), and dichotomized (poor, 0 to 4; good, 5 to 10) on the basis of previous findings.[22] Information on municipality of residence at the time of diagnosis was obtained from the Regional Breast Cancer Quality Register and was dichotomized into urban (cities, suburbs, and commuting municipalities) and rural (other) municipalities based on the assumption of differential geographic accessibility to health care services that provide surgery and oncologic therapy.

Data on work-related factors were obtained at follow-up and included study-specific items. Working status prediagnosis was dichotomized into full-time (100%) or part-time (< 100%) work. Value attached to work (0, not important at all; 10, very important) and work limitations as a result of the cancer or treatment (0, none at all; 10, to a high degree) were assessed on 11-point numerical scales and dichotomized by the medians (value attached to work 0 to 9 and 10; cancer-related work limitations 0 and 1-10). Employer accommodation, employer discrimination, and support from co-workers were assessed on 4-point Likert scales and dichotomized (no problems, any problems) to stress the importance of any perceived problems. To increase cell count, employer accommodation and discrimination were collapsed into one dichotomized variable.

Normative Data

Official employment statistics from 2008 to 2009 on the general female population in the Uppsala-Örebro Region were obtained from Statistics Sweden.[27] Data included prevalent, age-stratified employment information (gainfully employed v not gainfully employed) from the annual Labor Statistics Based on Administrative Sources (RAMS).

Statistical Methods

Differences in clinical characteristics between the participants, nonapproached women, and nonresponders were assessed by using independent sample t tests for continuous variables, Fisher's exact tests for dichotomized variables, and Mann Whitney U tests for ordinal scales. Missing values for the subscales of the EORTC QLQ-C30 were substituted according to the manual.[28]

The first and second aims of the study were assessed by using descriptive statistics stratified by age and chemotherapy. Univariate logistic regression models stratified by chemotherapy were performed to test which explanatory variables were associated with job discontinuation/decreased working time (0, no change/increased working time; 1, job discontinuation/decreased working time). Only variables statistically significantly associated with the outcome variable were entered into the multivariate logistic regression models. Age and time since diagnosis were included as covariates. Because of a few patients in each cell, age was kept as a continuous variable. The P value was set to less than .05, and all tests were two-tailed. IBM SPSS Statistics version 20.0 (IBM, Armonk, NY) was used for data analyses.

RESULTS

In comparison with study participants, a larger proportion of nonapproached women had distant metastases at diagnosis (1% v 4%), and a smaller proportion of nonresponders at baseline had received endocrine therapy (64% v 54%; Table 1). In comparison with participants, nonresponders at follow-up were younger (mean, 52.2 v 49.7 years), perceived poorer physical (median, 86.7 v 80.0), emotional (median, 75.0 v 58.3), and cognitive (median, 83.3 v 66.7) functioning and higher levels of fatigue (median, 33.3 v 44.4) and had a poorer financial situation at baseline (median, 6 v 5).

Occupational Status Among Study Participants Compared With Normative Data

The majority of participants (74%) were employed at follow-up, which corresponds with normative data (76%; Table 2). Among the youngest women (age ≤ 39 years), a larger proportion of participants (83%) were employed than in the normative data (75%). Participants who had received chemotherapy and those who had not were employed to the same extent (74%).

Change in Working Time Among Study Participants

Subsequent analyses were restricted to participants who were employed before the diagnosis. Moreover, participants with distant metastases or a recurrence/new breast cancer were excluded because

of the low number of patients (n = 15). Among the remaining participants (n = 406), 67% (n = 270) worked full-time prediagnosis compared with 50% (n = 204) postdiagnosis (Table 3). Eleven percent (n = 43) did not work at follow-up, and 15% (n = 61) reported decreased working time. The majority (72%; n = 292) reported no change in working time, and 2% (n = 10) had increased their working time.

In the chemotherapy group, 24% had decreased their working time compared with 6% in the nonchemotherapy group (Fig 2). The highest proportion (35%) of decreased working time among chemotherapy recipients was reported in the youngest age group (age ≤ 39 years). The highest proportion of women who had stopped working was found in the oldest age group (age ≥ 60 years), both among chemotherapy recipients (30%) and in the nonchemotherapy group (28%).

Factors Associated With Job Discontinuation/Decreased Working Time

At follow-up, 52% (n = 211) valued their work as very important, and 45% (n = 184) perceived some level of cancer-related work limitations. Twenty-one percent (n = 86) reported lack of employer accommodation and/or discrimination at work, and 18% (n = 74) perceived lack of support from co-workers.

In multivariate analyses, chemotherapy, cancer-related work limitations, and less value attached to work were associated with a higher likelihood of job discontinuation/decreased working time among all participants (Table 4). In the chemotherapy group, having worked full-time prediagnosis, cancer-related work limitations, and less value attached to work were associated with a higher likelihood of job discontinuation/decreased working time. In the nonchemotherapy group, older age and less value attached to work were associated with a higher likelihood of job discontinuation/decreased working time.

DISCUSSION

The majority of women treated for breast cancer were employed 16 months postdiagnosis and reported no change in working time compared with their situation prediagnosis. One in four had not resumed work or had decreased their working time. Chemotherapy, cancer-related work limitations, less value attached to work, older age, and full-time work prediagnosis were associated with job discontinuation or a decrease in working time.

This study is one of the first to include information on the degree of work resumption. Fifteen percent had decreased their working time, and 11% had not resumed work. In a previous Swedish cohort study,[4] 59% of the women were working their prediagnosis hours 10 months after breast cancer surgery, while 41% were still on part-time or full-time sick leave. Thus, Swedish women treated for breast cancer seem to gradually return to their prediagnosis working time, which is supported by a recent Register-based study.[8] However, a subgroup of women treated for breast cancer is at higher risk of not working than the general female population.[9,11,12] The decrease in working time reported in this study may have implications for society in terms of economic costs.[29] To support patients with breast cancer, it is important to identify factors related to negative work outcomes.

Compared with normative data, no overall difference in occupational status was observed 16 months postdiagnosis. Interestingly, the greatest difference was seen among the youngest women (age ≤ 39

	Study Sample (n = 505)		Nonapproached Patients (n = 251)			Nonresponders at Baseline (n = 174)			Nonresponders at Follow-Up (n = 46)		
Characteristic	No.	%	No.	%	P	No.	%	P	No.	%	P
Months between diagnosis and follow-up											
Mean	16.4		—			—			—		
Range	13-23		—			—			—		
SD	1.2		—			—			—		
Age, years											
Mean	52.2		52.3		N/S	52.0		N/S	49.7		.032
Range	25-62		24-62			30-62			31-62		
SD	7.5		7.7			7.8			8.4		
≤ 39	40	8	14	6	—	11	6	—	7	15	—
40-49	134	26	73	29		51	29		13	28	
50-59	236	47	103	41		74	43		20	44	
≥ 60	95	19	61	24		38	22		6	13	
Mastectomy											
Yes	192	38	83	33	N/S	56	32	N/S	19	41	N/S
No	313	62	167	67		118	68		27	59	
Oncologic treatment											
Radiation therapy	399	79	194	77	N/S	139	80	N/S	33	72	N/S
Chemotherapy	244	48	108	43	N/S	79	45	N/S	27	59	N/S
Endocrine therapy	322	64	146	58	N/S	94	54	.024	24	52	N/S
Antibody therapy	54	11	28	11	N/S	20	12	N/S	6	13	N/S
Distant metastases at diagnosis											
Yes	6	1	9	4	.048	1	1	N/S	2	4	N/S
No	499	99	242	96		173	99		44	96	
Municipality of residence											
Urban	307	61	161	64	N/S	101	58	N/S	34	74	N/S
Rural	198	39	90	36		73	42		12	26	
Physical functioning											
Median*	86.7		—			—			80.0		.003
Range	0-100								0-100		
Poor (< 86.7)	186	37							25	54	.017
Good (≥ 86.7)	317	63							20	44	
Emotional functioning											
Median*	75.0		—			—			58.3		.002
Range	0-100								0-100		
Poor (< 75.0)	237	47							28	61	.041
Good (≥ 75.0)	265	53							16	35	
Cognitive functioning											
Median*	83.3		—			—			66.7		.006
Range	0-100								0-100		
Poor (< 83.3)	186	37							24	52	.024
Good (≥ 83.3)	316	63							20	44	
Fatigue											
Median†	33.3		—			—			44.4		.005
Range	0-100								0-100		
Low level (≤ 33.3)	294	58							17	37	.001
High level (> 33.3)	211	42							28	61	
Comorbidity											
< Two comorbidities	374	74	—			—			31	67	N/S
≥ Two comorbidities	131	26							15	33	
Marital status											
Married/cohabiting	388	77	—			—			29	63	N/S
Single/live apart	115	23							16	35	
Children											
Yes	449	89	—			—			39	85	N/S
No	54	11							6	13	
Social support											
Yes	443	88	—			—			38	83	N/S
No	57	11							7	15	

Table 1. Baseline Clinical and Sociodemographic Characteristics in a Population-Based Cohort of Women With Breast Cancer in Sweden (n = 976)

(continued on following page)

Table 1. Baseline Clinical and Sociodemographic Characteristics in a Population-Based Cohort of Women With Breast Cancer in Sweden (n = 976) (continued)

Characteristic	Study Sample (n = 505)		Nonapproached Patients (n = 251)			Nonresponders at Baseline (n = 174)			Nonresponders at Follow-Up (n = 46)		
	No.	%	No.	%	P	No.	%	P	No.	%	P
Education											
University level	213	42	—			—			16	35	N/S
Lower education	292	58							30	65	
Financial situation											
Median‡	6		—			—			5		< .001
Range	0-10								0-10		
Poor (0-4)	106	21							21	46	< .001
Good (5-10)	389	77							22	48	

NOTE. Where numbers in a category do not add up to n or 100%, there is internal dropout.
Abbreviations: N/S, not significant; SD, standard deviation.
*Higher scores indicate better functioning.
†Higher scores indicate more symptoms.
‡0, worst imaginable; 10, best imaginable.

years), with a larger proportion of participants being employed at follow-up than normative data. The fact that the variable "employment" obtained from official statistics also included women on temporary sick leave suggests that the actual difference between the youngest women and normative data may be larger than the observed difference. A recent Swedish study[9] reported an increased risk of breast cancer among working women. It is well established that the risk of breast cancer is higher among women with a higher social position.[30] Hence, prediagnosis sociodemographic differences may contribute to our findings. In previous research,[6,10] no differences in occupational

status have been found between women treated for breast cancer and comparison women regarding age, which supports our results showing small between-group differences for women older than age 39 years.

The highest proportion of women treated for breast cancer who were not working was reported among those age ≥ 60 years. The impact of older age on return to work was also shown in the multivariate analyses, corroborating previous research.[5,6,15] One explanation may be that older women are prone to work less as a natural part of life. However, the impact of age was found in the nonchemotherapy group

Table 2. Age-Stratified Occupational Status in a Population-Based Cohort of Women With Breast Cancer in Sweden 16 Months (mean) After Diagnosis (n = 505) Compared With Normative Data (n = 490,042)

Variable	Total		Age (Years)							
			25-39		40-49		50-59		60-62	
	No.	%	No.	%	No.	%	No.	%	No.	%
Study sample										
Employed*	376	74	33	83	111	83	179	76	53	56
Disability pension	57	11	0	0	7	5	29	12	21	22
Sick leave†	35	7	2	5	8	6	18	8	7	7
Unemployed	14	3	3	8	5	4	3	1	3	3
Retirement	10	2	0	0	0	0	2	1	8	8
Homemaker	10	2	1	2	2	1	4	2	3	3
Student	3	1	1	2	1	1	1	0	0	0
Total	505	100	40	100	134	100	236	100	95	99

	Total		25-39		40-49		50-59		60-64	
	No.	%	No.	%	No.	%	No.	%	No.	%
Normative data‡										
Employed§	373,053	76	123,575	75	106,255	82	99,826	79	43,397	61
Not employed	118,069	24	40,993	25	22,727	18	26,139	21	28,210	39
Total	491,122	100	164,568	100	128,982	100	125,965	100	71,607	100

*Full-time employed and part-time employed plus other (part-time maternity leave, disability pension, sick leave, retirement pension, or student).
†Full-time sick leave and part-time sick leave plus part-time disability pension.
‡Numbers are based on mean values from the 2008 and 2009 official statistics.
§Employed or temporarily absent from work.

Table 3. Working Time Prediagnosis and 16 Months (mean) Postdiagnosis Among Women With Breast Cancer in Sweden (n = 406)

Working Time Prediagnosis	No. of Participants	Working Time 16 Months Postdiagnosis (no. of participants)					
		0%	1%–24%	25%–49%	50%–74%	75%–99%	100%
< 25%	0	0*	0†	0§	0§	0§	0§
25%–49%	3	3*	0‡	1†	0§	0§	0§
50%–74%	49	12*	0‡	3‡	29†	3§	1§
75%–99%	84	6*	0‡	3‡	4‡	65†	6§
100%	270	22*	0‡	3‡	17‡	31‡	197†
Total	406	43	0	10	50	99	204

*Indicates job discontinuation.
†Indicates no change in working time.
‡Indicates a decrease in working time.
§Indicates an increase in working time.

only. As illustrated in Figure 2, a negative work outcome among chemotherapy recipients was primarily due to a reduction in working time among younger women, while older women (age ≥ 60 years) more often did not work. Thus, the impact of older age on job discontinuation may have been outweighed by decreased working time among younger women. Our findings support previous research[13,14] indicating that younger women prolong absenteeism by partial return to work (ie, decreased working time).

Chemotherapy was associated with job discontinuation or decreased working time, which corroborates previous results.[3,4,9,13] Chemotherapy has been reported to negatively affect HRQoL among breast cancer survivors,[31] which may be the reason that adverse effects of treatment help explain our findings. We did not find any associations with fatigue or poorer functioning, but cancer-related work limitations were associated with job discontinuation or decreased working time among chemotherapy recipients. Chemotherapy is generally recommended to the patient on the basis of risk assessment at the group level, which has contributed to improved survival rates of breast cancer.[16] However, the benefits for the individual woman are unknown, leaving a large proportion of patients with substantial adverse effects and potentially no treatment benefit. In the clinical setting, it is important to discuss adverse effects so that patients can make informed treatment decisions and so that multidisciplinary teams can identify any disabling adverse effects, which may help facilitate rehabilitation and resumption of work.

An unsupportive work environment has been reported to negatively affect resumption of work among women treated for breast cancer.[4,5,15] In this study, about one fifth of the women reported problems regarding support from co-workers, employer accommodation, and/or discrimination at work, but none of these factors were associated with job discontinuation or decreased working time. One explanation may be the high valuations of work, which may have enabled women to overcome any problems regarding an unsupportive work environment. Women who reported less value attached to work were more likely not to work or to have decreased their working time. In a recent qualitative study,[20] women treated for breast cancer reported changes in their valuation of labor market participation, and for some women, work had lost its meaning. One explanation could be a reassessment of life values following breast cancer.[32] In a population-based retrospective study of breast cancer survivors,[6] less value attached to work was associated with not working, a finding that was confirmed in this study.

Finally, full-time work prediagnosis was associated with job discontinuation or decreased working time among chemotherapy recipients. One explanation may be that, for some women, a full-time job is too physically or mentally demanding after chemotherapy. Cross-country differences, lack of power and stratification, and different outcome measures may explain why this result has not been reported elsewhere.[4,6,13]

Neither education nor financial situation influenced the outcome, lending support to previous studies that also have not found such associations.[3-5,13] However, previous research[6,9,15] has been contradictory. Moreover, Swedish studies have reported an unfavorable influence of socioeconomic factors on breast cancer management[33] as well as associations with poorer HRQoL.[22] Therefore, future longitudinal studies should seek to determine any potential influence of socioeconomic factors on return to work.

One strength of this study was the use of a population-based register, which increased generalizability of the findings. However, comparing participants with nonapproached women and nonresponders revealed that participants had a more favorable situation, indicating some selection bias.

Limiting the second and third aims to participants employed before the diagnosis reduced the sample size, which may have decreased the possibility to detect significant associations. Nevertheless, excluding
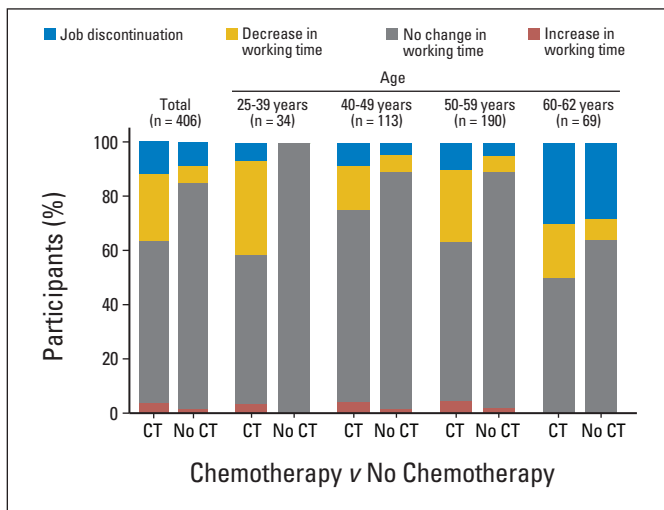

Fig 2. Change in working time 16 months (mean) postdiagnosis compared with working time prediagnosis stratified by age and chemotherapy (CT; n = 406 women with breast cancer in Sweden).

Table 4. Univariate and Multivariate Analyses of Factors Associated With Job Discontinuation or Decreased Working Time Among Women With Breast Cancer in Sweden 16 Months (mean) Postdiagnosis (n = 390)

Variables	Crude OR			Adjusted OR		
	OR	95% CI	P	OR	95% CI	P
All (n = 390)						
Age	1.01	0.98 to 1.04	N/S	1.03	0.99 to 1.07	N/S
Time since diagnosis	1.01	0.84 to 1.23	N/S	1.00	0.81 to 1.23	N/S
Chemotherapy						
No	1.00	—		1.00	—	
Yes	3.27	2.00 to 5.33	< .001	2.45	1.38 to 4.34	.002
Antibody therapy						
No	1.00	—		1.00	—	
Yes	3.16	1.62 to 6.16	.001	1.76	0.81 to 3.82	N/S
Physical functioning						
Good	1.00	—		1.00	—	
Poor	2.02	1.25 to 3.24	.004	1.00	0.56 to 1.80	N/S
Emotional functioning						
Good	1.00	—		1.00	—	
Poor	1.62	1.02 to 2.58	.040	1.12	0.63 to 1.98	N/S
Cancer-related work limitations						
None at all	1.00	—		1.00	—	
Any limitations	3.30	2.03 to 5.36	< .001	2.28	1.25 to 4.14	.007
Value attached to work						
Very important	1.00	—		1.00	—	
Less important	3.90	2.36 to 6.44	< .001	3.65	2.15 to 6.21	< .001
Chemotherapy (n = 186)						
Age	1.01	0.97 to 1.04	N/S	1.01	0.97 to 1.05	N/S
Time since diagnosis	0.98	0.78 to 1.24	N/S	0.94	0.72 to 1.23	N/S
Antibody therapy						
No	1.00	—		1.00	—	
Yes	2.08	1.01 to 4.29	.047	1.50	0.66 to 3.43	N/S
Working status prediagnosis						
Part-time work (< 100%)	1.00	—		1.00	—	
Full-time work (100%)	2.39	1.23 to 4.67	.011	3.25	1.51 to 7.01	.003
Cancer-related work limitations						
None at all	1.00	—		1.00	—	
Any limitations	5.24	2.45 to 11.23	< .001	5.26	2.30 to 12.03	< .001
Value attached to work						
Very important	1.00	—		1.00	—	
Less important	3.60	1.90 to 6.82	< .001	3.69	1.80 to 7.54	< .001
No chemotherapy (n = 204)						
Age	1.09	1.02 to 1.18	.014	1.09	1.02 to 1.17	.013
Time since diagnosis	1.00	0.71 to 1.42	N/S	1.02	0.72 to 1.45	N/S
Value attached to work						
Very important	1.00	—		1.00	—	
Less important	4.88	1.99 to 11.99	.001	5.00	2.01 to 12.45	.001

Abbreviations: OR, odds ratio; N/S, not significant.

these participants increased the possibility to detect associations related to the breast cancer diagnosis rather than to concurrent diseases, for example. A further strength was the longitudinal design that enabled assessment of temporal relationships regarding clinical and sociodemographic factors.

In conclusion, the majority of women treated for breast cancer returned to work to at least the same extent as before the diagnosis. However, one in four women did not work or had decreased working time. In particular, chemotherapy and cancer-related work limitations are important factors to take into account to identify women in need of support. It is also essential to consider that a breast cancer diagnosis may be followed by a reassessment of life goals. Thus, not returning to work or decreasing working time may be the optimal outcome for some women.

AUTHOR CONTRIBUTIONS

Conception and design: Marie Høyer, Karin Nordin, Johan Ahlgren, Leif Bergkvist, Mats Lambe, Birgitta Johansson, Claudia Lampic

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