

Perceived work ability at return to work in women treated for breast cancer: a questionnaire-based study

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KEY WORDS: Breast cancer; employment; return to work; rehabilitation; occupation; work ability

PAROLE CHIAVE: Tumore alla mammella; occupazione; reinserimento al lavoro; capacità lavorativa

SUMMARY

Background: *Breast cancer survivors often perceive reduced work ability upon returning to work. Objectives:* To identify predictors of perceived reduced work ability following return to work among women treated for breast cancer and to describe workplace interventions and support after returning to work. **Methods:** A questionnaire was sent to 18–65 years-old women (no. 1578) treated for breast cancer and residing in the catchment area of the Bologna Local Health Authority between 2010 and 2012. The study population was identified through a Hospital Discharge Database. The questionnaires included items about personal characteristics, cancer and work-related factors, perceived work ability and the return to work process. A multivariable logistic regression analysis was performed to identify predictors of reduced work ability upon returning to work. **Results:** Among the 841 respondents, 503 questionnaires were evaluable. In the study, 43.5% of the respondents reported reduced work ability with respect to the pre-diagnosis period. Reduced work ability was more common in non-cohabiting (OR=1.81, 95%CI 1.10–2.98) than in cohabiting/married women, and after mastectomy (OR=2.77, 95%CI 1.26–6.11) than after breast-conserving surgery. Office staff/sales assistants and managers were less likely to report reduced work ability (OR=0.51, 95%CI 0.30–0.88 and OR=0.21, 95%CI 0.06–0.76, respectively) than labourers. Women who perceived reduced work ability reported more frequently adjustment of work assignments, consultation of an occupational physician, insufficient support from employers and colleagues and discrimination. **Conclusions:** Reduced work ability is commonly perceived among women who return to work after treatment for breast cancer. Occupational physicians and general practitioners should be aware of a wide range of factors influencing this perception in order to facilitate a successful return to work.

Pervenuto il 9.4.2018 - Revisione pervenuta il 20.10.2018 - Accettato il 8.11.2018

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Funding: The study was supported by Regione Emilia Romagna (Progetti 758/2012)

The results of this work were presented in part at SITI (Congresso Nazionale della Società Italiana di Igiene Medicina Preventiva e Sanità Pubblica Torino, 22-25 November 2015); an abstract was accepted for oral presentation at the 32nd International Congress on Occupational Health (ICOH 2018, Dublin, Ireland, 29 April - 4 May 2018)

RIASSUNTO

«*Capacità lavorativa percepita al ritorno al lavoro: indagine su un gruppo di donne trattate per tumore alla mammella*». **Introduzione:** Le donne trattate per tumore alla mammella possono percepire una ridotta capacità lavorativa al rientro al lavoro. **Obiettivi:** Identificare predittori di ridotta capacità lavorativa nelle donne trattate per tumore alla mammella che ritornano al lavoro e descrivere gli interventi adottati nella sede di lavoro e il supporto ricevuto. **Metodi:** La popolazione in studio include tutte le donne trattate per tumore alla mammella tra il 2010 ed il 2012 residenti nel territorio dell'Azienda USL di Bologna, identificate attraverso le Schede di Dimissione Ospedaliera (n. 1578). A ciascuna donna è stato inviato un questionario per la raccolta di dati su caratteristiche personali, cliniche, aspetti lavorativi e reinserimento al lavoro. Per identificare i predittori di ridotta capacità lavorativa al rientro al lavoro è stata condotta un'analisi multivariata con regressione logistica. **Risultati:** 841 donne hanno compilato il questionario e i questionari utilizzabili in analisi sono stati 503. Il 43.5% delle donne ha riferito una ridotta capacità lavorativa rispetto al periodo precedente la diagnosi. La percezione di una ridotta capacità lavorativa è risultata più comune nelle donne non conviventi vs conviventi/sposate (OR=1.81, 95%CI 1.10-2.98) e dopo mastectomia vs interventi conservativi (OR=2.77, 95%CI 1.26-6.11); viceversa è apparsa meno frequente tra le impiegate e dirigenti rispetto alle operaie (OR=0.51, 95%CI 0.30-0.88 e OR=0.21, 95%CI 0.06-0.76, rispettivamente). Adattamenti dell'attività lavorativa, la consulenza del medico del lavoro, uno scarso supporto percepito da parte del datore di lavoro e dei colleghi e discriminazione sono risultati significativamente più frequenti tra le donne che riferivano una riduzione della capacità lavorativa. **Conclusioni:** La percezione di una ridotta capacità lavorativa è comune tra le donne che rientrano al lavoro dopo essere state trattate per tumore alla mammella. I medici del lavoro e di medicina generale dovrebbero tener conto dei fattori associati alla ridotta capacità lavorativa per favorire il reinserimento al lavoro.

INTRODUCTION

Breast cancer is the most common form of cancer in women worldwide (3). Because it is the leading cancer diagnosis among adult females at any time of life, it is common in the working-age population (28). With survival rates improving in recent decades (1, 4, 23) breast cancer now accounts for more than 40% of all female cancer survivors in both the United States and Italy (1, 12).

Early breast cancer diagnosis and improved therapeutic procedures have reduced the impact of treatment on function and increased the proportion of women possibly employed after breast cancer occurrence. Growing numbers of women in the workforce and the extension of working life are additional factors that contribute to increasing the number of women with breast cancer who work or have to face returning to work.

Work is generally considered to be good for both health and wellbeing. The conceptual framework proposed by the Commission on Social Determinants of Health considers employment to be one of the structural determinants of socioeconomic status and one of the social determinants of health

inequalities (32). Hence, following a cancer diagnosis, supporting the return to work and retaining employment and wellbeing at work is essential for both the patient and society at large (6, 9). The prevalence of women returning to work within one year of diagnosis varies between 43% and 93%. Ethnicity, cancer stage at diagnosis, treatment, job type, income, insurance and quality of life are important drivers for this discrepancy (11, 14, 15, 22, 25).

One of the main factors affecting the process of returning to work among breast cancer survivors is work ability (2), a dynamic process of human resources in relation to work that can be influenced by health and functional capacities (physical, mental, social), education and competence, values and attitudes, and motivation. Physical and mental demands, work community and management, together with the work environment, can also affect individual work ability (19). Cancer survivors may experience long-term and late physical and psychological effects due to local and adjuvant systemic therapy, as well as body image concerns, distress, depression or anxiety associated to the fear of recurrence (26, 31). As a consequence, poor mental and physical health can severely impact their work ability (26).

Evidence on work ability and barriers to the return to work in breast cancer patients is still lacking and not explored in Italy (13, 16, 27). Research is needed to better understand the role of socio-demographic and clinical factors such as type of intervention and pharmacological treatment. In this context the aim of the study was to identify social, demographic and clinical factors associated with the perception of reduced work ability upon returning to work among women treated for breast cancer. A secondary objective was to describe workplace interventions and support received after returning to work in relation to the perceived work ability.

METHODS

We conducted a questionnaire-based cross-sectional study of all women aged 18-65 years who: a) had undergone breast cancer surgery and were residing in the catchment area of the Bologna Local Health Authority between 1 January 2010 and 31 December 2012; b) were working both before the diagnosis of breast cancer and at the time of enrolment. The Bologna Local Health Authority covers most of the Metropolitan Area of Bologna in Northern Italy and serves approximately 870,000 residents.

The Ethics Committee of the Bologna and Imola Local Health Authorities approved the study. All procedures were performed in accordance with the ethical standards of the Ethics Committee and with the 1964 Helsinki Declaration and its later amendments.

The study population was selected from the local Hospital Discharge Database for the 2010-2012 period, according to diagnosis and intervention codes. The database contains all hospital admissions and discharges in the region. After excluding deceased cases, a questionnaire was sent to each selected woman in September 2014 with a letter of presentation, an informed consent form and a pre-paid envelope to return all the documents once completed. Women not having replied within 30 days were contacted by telephone and received a second copy of the questionnaire. Questionnaires returned by June 2015 were analysed after excluding women who were not working at the time of diagnosis or

who did not return to work after treatment. Home addresses were retrieved from an administrative local health register.

The self-administered questionnaire contained 43 questions on various issues selected on the basis of previous research.

1. Personal information and health history: socio-demographic characteristics (employment status, nationality, age, marital status, educational level), physical and psychological complaints (e.g. fatigue, concentration problems, depression, sleep problems, pain, physical impairments, upper limb disorders) before breast cancer diagnosis, non-cancer related therapies for health-related problems occurring before breast cancer diagnosis.

2. Cancer-related factors: type of surgery, chemotherapy, hormone and radiation therapy, post-surgery treatments (upper limb physiotherapy, psychological support, pain therapy).

3. Work-related characteristics: job sector, job title and type of contract/assignment.

4. Return to work process: return to work (yes/no), perceived work ability and barriers to returning to work and duration of sick leave.

5. Work-related factors and feelings after return to work: information on work facilitations, adjustment of the workplace or working conditions (reduced working hours, flexibility, less physical and mental effort, reduced work pace, introduction of breaks, job modification), role and interventions carried out by the occupational physician, support from the employer and colleagues, and feeling of discrimination.

The perceived work ability upon returning to work was assessed by asking women to evaluate their work ability when they returned to work compared to their work ability before the breast cancer diagnosis with a dichotomous answer ("How would you assess your work ability at the time of return to work?", possible answers were "same ability" or "reduced ability").

Descriptive statistics of potential predictors of reduced work ability are reported. Continuous variables are presented as mean \pm standard deviation (SD), while categorical variables are presented as absolute and relative frequency. Independent t-test, Pearson's chi-square and Fisher's exact tests were

used to compare women with and without reduced work ability. Multivariable logistic regression analysis was performed to study the association between reduced work ability and potential risk factors, primarily selected on the basis of previous studies (23-24): age, marital status (married or cohabiting vs non-cohabiting, with the latter including single, widowed and divorced women), education level, professional qualification, type of surgery (mastectomy vs breast-conserving interventions), post-surgery treatments, drugs or surgery for other reasons not related to cancer; physical and psychological/relationship problems before breast cancer diagnosis and information about work facilitations. The duration of sick leave was included in the model only in a secondary analysis because of its possible role as an intermediate variable on the causal pathway. The results are presented as Odds Ratios (OR) with their 95% confidence intervals (95%CI). Work-related factors and feelings after returning to work were not included in the multivariable model because they refer to the after-return-to-work period and therefore cannot be considered potential predictors of perceived work ability at return to work. Descriptive analysis of these variables is reported by perceived work ability.

All *P*-values are based on two-sided tests and $P < 0.05$ were considered significant. Statistical analysis was performed using the statistical package Stata Intercooled for Windows, version 12.0, Texas, US.

RESULTS

A total of 1,578 women were selected and invited to complete the questionnaire: 841 completed questionnaires were returned (response rate 53.3%), of whom 301 were excluded because the respondents had not been working at the time of diagnosis and 37 because the respondents had not yet returned to work at the time of the study (Figure 1).

The final sample was composed of 503 women, mean age 51.5 ± 3.6 years. The mean time lapse between treatment and participation to the survey was 3.2 ± 0.9 years. The vast majority of women were of Italian nationality. A large proportion of the study sample were married or cohabiting (78.3%), had a

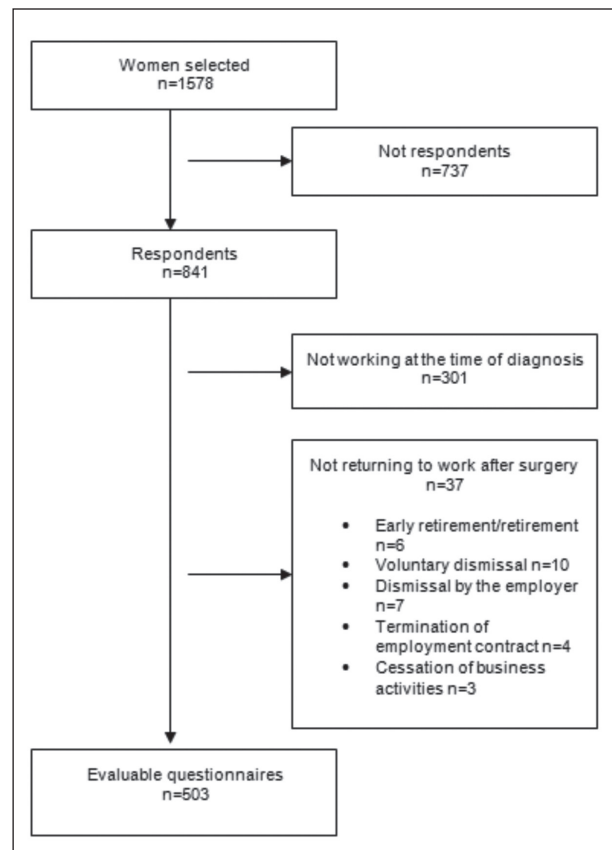


Figure 1 - Flow chart of participant selection

quite high educational level (50.5% reported a high school diploma and 24.8% a university degree), had a permanent employment contract (84.7%) and were employed as office workers (62.2%). Quadrantectomy was the most frequent surgical treatment (67.8%), followed by mastectomy. Two hundred and ten women (41.7%) had had an axillary lymph node dissection. Two hundred and fifty-one women were treated with chemotherapy (49.9%) and 73.4% with radiation therapy. Only ninety-nine women (19.7%) received psychological support after surgery and 64.6% of the respondents were informed about work facilitations. The duration of sick leave was less than three months in 55.4% of cases, but longer than six months in 23.9% (Table 1). Almost half of the women (43.5%) reported reduced work ability upon returning to work.

There were no differences between respondents and non-respondents except for the place of living: 61.6% of non-respondents lived in urban areas

Table 1 - Sociodemographic and clinical characteristics of the women (N=503) included in the study, absolute and relative frequencies

Sociodemographic and clinical characteristics	n (%)
Age (years)	
<45	73 (14.5)
45-54	275 (54.7)
55-64	146 (29.0)
≥ 65	9 (1.8)
Marital status	
cohabiting/married	394 (78.3)
not cohabiting	105 (20.9)
missing	4 (0.8)
Education	
primary, middle school	115 (22.9)
secondary school	254 (50.5)
university degree	125 (24.8)
missing	9 (1.8)
Other interventions at the breast	
no	322 (64.0)
yes	181 (36.0)
Physical problems before breast cancer diagnosis	
no	347 (69.0)
yes	156 (31.0)
Psychological/marital problems before breast cancer diagnosis	
no	319 (63.4)
yes	184 (36.6)
Type of intervention	
breast-conserving surgery (quadrantectomy)	341 (67.8)
mastectomy	162 (32.2)
Lymph node dissection	
no	289 (57.5)
yes	210 (41.7)
missing	4 (0.8)
Radiation therapy	
no	134 (26.6)
yes	369 (73.4)
Chemotherapy	
no	252 (50.1)
yes	251 (49.9)
Hormonal treatment	
no	119 (23.7)
yes	384 (76.3)
Breast reconstruction	
no	385 (76.5)
yes	118 (23.5)

(continued)

Table 1 (continued) - Sociodemographic and clinical characteristics of the women (N=503) included in the study, absolute and relative frequencies

Sociodemographic and clinical characteristics	n (%)
Physiotherapy at upper arms	
no	405 (80.5)
yes	98 (19.5)
Psychological support	
no	404 (80.3)
yes	99 (19.7)
Pain therapy	
no	453 (90.1)
yes	50 (9.9)
Drugs or surgery for other non-cancer related causes	
no	443 (88.1)
yes	60 (11.9)
Profession	
labourers	108 (21.5)
office staff/sales assistants	313 (62.2)
managers	20 (4.0)
professional/handicraft workers	57 (11.3)
missing	5 (1.0)
Sector	
agriculture	5 (1.0)
commerce	112 (22.3)
chemistry	10 (2.0)
public administration/education	110 (21.9)
construction	10 (2.0)
manufacturing	64 (12.7)
health/social services	60 (11.9)
services	112 (22.3)
other	10 (2.0)
missing	10 (2.0)
Type of contract	
permanent	426 (84.7)
fixed-term	13 (2.6)
other	45 (8.9)
missing	19 (3.8)
Duration of sick leave	
none or <1 month	124 (24.6)
1 month - <3 months	155 (30.8)
3 months - <6 months	75 (14.9)
≥6 months	120 (23.9)
missing	29 (5.8)
Information on work facilitations	
no	170 (33.8)
yes	325 (64.6)
missing	8 (1.6)

and 21.0% in rural areas, whereas among respondents figures were 54.5% and 27.6% respectively ($p=0.015$). Mean age was 55.2 ± 8.2 years old among respondents and 55.0 ± 8.2 , among non-respondents ($p=0.6143$).

The multivariable analysis shows that non-cohabiting women (single, divorced or widowed) had a 1.81-fold increased probability of reduced work ability upon returning to work (OR=1.81, 95%CI 1.10-2.98, $P=0.020$). Mastectomy was associated with a higher probability of reporting a reduction in work ability (OR=2.77, 95%CI 1.26-6.11, $P=0.012$) if compared with breast-conserving surgery. Similarly, hormonal treatment was associated with a higher probability of reduced work ability, although the results were not statistically significant. Managers and office staff/sales assistants were less likely to report reduced work ability (OR=0.21, 95%CI 0.06-0.76, $P=0.017$; OR=0.51, 95%CI 0.30-0.88, $P=0.016$, respectively) (Table 2).

Table 3 presents differences in job-related factors and feelings after returning to work between women with and without reduced work ability at return to work. A significantly higher proportion of women with a reduced work ability upon returning to work reported adjustments of work assignments compared to women whose work ability was perceived as unchanged (51.9% vs. 15.8%, $P<0.001$). At the same time, women with a reduced work ability upon returning to work were more likely to consult an occupational physician (48.4% vs. 31.6%, $P<0.001$), and the occupational physician cooperated with the employer to find work adjustments in 69.9% of cases. However, women with reduced work ability reported less support from their employer (70.2% vs. 85.1%, $P<0.001$) and colleagues (76.8% vs. 91.5%, $P<0.001$), and more discrimination (20.9% vs. 7.1%, $P<0.001$). In a secondary analysis when the variable duration of sick leave was included in the model, only this variable was associated with reduced work ability. The probability of a reduced work ability increased as time off work for illness increased (1-3 months of sick leave: OR=2.39, 95%CI 1.27-4.52, $P=0.007$; 3-6 months: OR=4.88, 95%CI 2.29-10.40, $P<0.001$; more than 6 months OR=6.57, 95%CI 3.21-13.44, $P<0.001$ compared to no or <1 month sick leave) (data not shown).

DISCUSSION

This population-based study conducted in Italy aimed to explore issues related to the return to work process among women diagnosed and treated for breast cancer. A total of 43.5% women reported reduced work ability upon returning to work and revealed a possible influence of both treatment-related factors and socio-demographic variables. Studies have displayed that a large proportion of cancer survivors cope with their work demands, however a significant proportion perceive reduced work ability (18, 30). In a Danish population-based study, impaired work ability was observed among breast cancer survivors able to come back to work if compared to cancer-free women (7).

Studies have documented that advanced stages of the disease, new cancer episodes and co-morbidities tend to reduce the ability to return to work. Treatment-related factors, including persistent side effects after surgery, especially after mastectomy and axillary node dissection, chemotherapy or radiation therapy, might influence work ability particularly through arm morbidity, fatigue and cognitive impairment (20, 24, 27). As expected, in our sample mastectomy was associated with a higher probability of reporting a reduction in work ability, whereas lymph node dissection was not. Literature reports that the degree of swelling associated with lymphedema varies widely among individuals, even for those who receive similar treatment and, in most cases, it is generally limited in extent and is not disabling (26).

We did not observe an association between reduced work ability and treatment-related factors after surgery (chemotherapy or radiation therapy, hormonal therapy did not reach statistical significance). One possible explanation could be related to the small proportion of women employed as labourers in high physically demanding jobs within our study population. Furthermore, we have excluded from the analysis women who had not returned to work when the survey was carried out (which could represent the most severe cases).

Among socio-demographic factors, non-cohabitation was associated with a reduced perceived ability to meet work demands. This finding is in line

Table 2 - Sociodemographic and clinical characteristics of women (N=503) according to perceived work ability upon returning to work, unadjusted and adjusted OR with their 95% confidence intervals (CI)

Sociodemographic and clinical characteristics	Reduced work ability (n=219) n (%)	Unadjusted OR	95% CI		P-value	Adjusted OR ^b	95% CI		P-value
Age (years)									
<45	30 (13.7)	1.00				1.00			
45-54	134 (61.2)	1.36	0.81	2.30	0.247	1.48	0.82	2.68	0.194
55-64	54 (24.7)	0.84	0.47	1.49	0.556	1.01	0.53	1.94	0.976
≥65	1 (0.5)	0.18	0.02	1.51	0.114	0.13	0.01	1.31	0.083
Marital status ^a									
cohabiting/married	161 (74.5)	1.00				1.00			
not cohabiting	55 (25.5)	1.57	1.02	2.42	0.041	1.81	1.10	2.98	0.020
Education ^a									
primary, middle school	57 (26.8)	1.00				1.00			
secondary school	109 (51.2)	0.76	0.49	1.19	0.235	0.66	0.39	1.14	0.134
university degree	47 (22.1)	0.61	0.37	1.03	0.062	0.66	0.35	1.26	0.207
Other interventions at the breast									
no	126 (57.5)	1.00				1.00			
yes	93 (42.5)	1.64	1.14	2.37	0.008	1.12	0.68	1.84	0.649
Physical problems before breast cancer diagnosis									
no	142 (64.8)	1.00				1.00			
yes	77 (35.2)	1.41	0.96	2.06	0.078	1.17	0.73	1.89	0.511
Psychological/marital problems before breast cancer diagnosis									
no	133 (60.7)	1.00				1.00			
yes	86 (39.3)	1.23	0.85	1.77	0.272	1.24	0.78	1.97	0.364
Type of intervention									
breast-conserving surgery (quadrantectomy)	131 (59.8)	1.00				1.00			
mastectomy	88 (40.2)	1.91	1.31	2.78	0.001	2.77	1.26	6.11	0.012
Lymph node dissection ^a									
no	111 (51.2)	1.00				1.00			
yes	106 (48.8)	1.63	1.14	2.34	0.007	0.94	0.59	1.49	0.795
Radiation therapy									
no	56 (25.6)	1.00				1.00			
yes	163 (74.4)	1.10	0.74	1.64	0.634	1.70	0.91	3.20	0.099
Chemotherapy									
no	92 (42.0)	1.00				1.00			
yes	127 (58.0)	1.78	1.25	2.54	0.001	1.28	0.81	2.02	0.291
Hormonal treatment									
no	39 (17.8)	1.00				1.00			
yes	180 (82.2)	1.81	1.17	2.79	0.007	1.66	0.99	2.80	0.056
Breast reconstruction									
no	154 (70.3)	1.00				1.00			
yes	65 (29.7)	1.84	1.21	2.79	0.004	0.77	0.38	1.57	0.480

(continued)

Table 2 (continued) - Sociodemographic and clinical characteristics of women (N=503) according to perceived work ability upon returning to work, unadjusted and adjusted OR with their 95% confidence intervals (CI)

Sociodemographic and clinical characteristics	Reduced work ability (n=219) n (%)	Unadjusted OR	95% CI	P-value	Adjusted OR ^b	95% CI	P-value
Physiotherapy at upper arms							
no	163 (74.4)	1.00			1.00		
yes	56 (25.6)	1.98	1.27 3.09	0.003	1.43	0.84 2.44	0.184
Psychological support							
no	164 (74.9)	1.00			1.00		
yes	55 (25.1)	1.83	1.17 2.85	0.008	1.33	0.79 2.25	0.290
Pain therapy							
no	190 (86.8)	1.00			1.00		
yes	29 (13.2)	1.91	1.06 3.45	0.032	1.24	0.60 2.56	0.569
Drugs or surgery for other non-cancer related causes							
no	181 (82.7)	1.00			1.00		
yes	38 (17.3)	2.50	1.43 4.37	0.001	1.84	0.95 3.58	0.072
Profession^a							
labourers	62 (28.4)	1.00			1.00		
office staff/sales assistants	126 (57.8)	0.50	0.32 0.78	0.002	0.51	0.30 0.88	0.016
managers	4 (1.8)	0.19	0.06 0.59	0.004	0.21	0.06 0.76	0.017
professionals/handicraft workers	26 (11.9)	0.62	0.33 1.19	0.150	0.79	0.36 1.74	0.561
Sector^a							
agriculture	3 (1.4)	2.41	0.39 14.99	0.347			
commerce	57 (26.5)	1.66	0.98 2.83	0.061			
chemistry	4 (1.9)	1.07	0.29 4.01	0.92			
public administration/education	48 (22.3)	1.24	0.73 2.12	0.427			
construction	1 (0.5)	0.18	0.02 1.46	0.108			
manufacturing	25 (11.6)	1.03	0.55 1.93	0.93			
health/social services	33 (15.4)	1.96	1.04 3.70	0.038			
services	43 (20.0)	1.00					
other	1 (0.5)	0.18	0.02 1.46	0.108			
Type of contract^a							
permanent	188 (87.4)	1.00					
fixed-term	5 (2.3)	0.79	0.25 2.46	0.686			
other	22 (10.2)	1.21	0.65 2.24	0.542			
Duration of sick leave^a							
none or <1 month	22 (10.3)	1.00					
1 month - <3 months	59 (28.2)	2.85	1.62 5.01	0.000			
3 months - <6 months	46 (22.0)	7.35	3.82 14.15	0.000			
≥6 months	82 (39.2)	10.00	5.49 18.23	0.000			
Information about work facilitations^a							
no	60 (27.7)	1.00			1.00		
yes	157 (72.3)	1.71	1.17 2.51	0.006	1.32	0.84 2.08	0.224

^amissing information for some women

^ball variables were included in the model except for type of contract, duration of sick leave and sector of occupation. The multivariable model was performed on 473 women

Table 3 - Job-related factors and feelings after returning to work according to work ability upon returning to work

Job-related factors and feelings	Reduced work ability		<i>P</i> -value
	no (n=284) n (%)	yes (n=219) n (%)	
Work adjustments	42 (15.8)	112 (51.9)	<0.001
Type of work adjustments			
time flexibility	8 (21.1)	13 (12.0)	0.173
time reduction	15 (39.5)	31 (28.7)	0.219
work pace reduction	1 (2.6)	20 (18.5)	0.016
introduction of breaks	3 (7.9)	11 (10.2)	0.680
reduced physical effort	13 (34.2)	53 (49.1)	0.113
reduced mental effort	1 (2.6)	8 (7.4)	0.292
change in job	5 (13.2)	26 (24.1)	0.157
Consultation of the occupational physician	83 (31.6)	104 (48.4)	<0.001
Reason for not consulting the occupational physician			
not available in the company	61 (36.3)	43 (42.6)	0.061
decision not to inform anyone at work	12 (7.1)	1 (1.0)	
not mandatory	95 (56.6)	57 (56.4)	
Cooperation between occupational physician and employer	28 (36.8)	65 (69.9)	<0.001
Support/solidarity from employer	205 (85.1)	141 (70.2)	<0.001
Support/solidarity from colleagues	227 (91.5)	152 (76.8)	<0.001
Feeling of discrimination	18 (7.1)	43 (20.9)	<0.001
Difficulties in obtaining work leave	16 (6.4)	17 (8.3)	0.423

with other studies underscoring that marital status and family support can influence the return to work process among cancer survivors (20, 27, 29). Non-cohabitation could be associated with financial insecurity and a lack of family support leading women to return to work despite poor work ability. Islam et al. observed that single, divorced or widowed breast cancer survivors were more likely to return to work, but suggested paying particular attention to the individual and socio-demographic conditions in which women need to return to work because of a lack of any other option (20). Unfortunately, we are not able to provide a definite answer to this issue, as we did not ask women whether they actually wanted to return to work.

In this study, work-related variables showed that managers and office staff/sales assistants were less

likely to report reduced work ability. These results agree with a Dutch study exploring cancer survivors' quality of working life and could be explained by certain characteristics of managerial functions such as higher job autonomy and less physical demand compared to labourers (10).

In addition, women with reduced work ability experienced less support and more discrimination from employers and colleagues, although more work adjustments and more visits to the occupational physician occurred in this group of women. In order to interpret this finding, we need to consider that work ability also depends on an individual's attitudes toward her illness. Studies have shown the importance of social support from employers and co-workers for a successful return to work and higher work ability (7, 21, 30). Discrepancies in can-

cer's impact on the return to work process have been observed between cancer survivors and employers (17). Thus, a feeling of lacking support could be a consequence of employers and co-workers misunderstanding cancer survivors' conditions and/or of a disproportion between expectations and what is offered in terms of work adjustments and support (2). The results of a recent scoping review revealed that many work-directed interventions failed to include follow-up for cancer and treatment side effects. This lack of a structured approach in the management of recurring symptoms could explain in part problems returning to work or with work retention (5). To prevent feelings of abandonment and promote a permanent return to work, communication between cancer survivors and supervisors responsible for return to work should be maintained over time even when work performance improves (8).

Finally, when the variable "duration of sick leave" was included in the model, it was associated with a perceived reduction in work ability, whereas there was no longer any association with the other variables. The duration of sick leave could mask the effect of less conservative interventions, type of work and marital status, and should be considered as an indicator of hidden problems impairing work ability or its perception. This finding suggests that women with long sick leave could decide to return to work for economic reasons despite their perceived degree of fitness for work. Sick leave regulations vary according to the type of contract in Italy. As a general rule, the maximum period of sick leave is three years after which the employee may be dismissed. Furthermore, the salary is gradually reduced after nine months of sick leave and cut off after 18 months. Disability benefits can be obtained in cases of certified disability.

One of the major limits of the study is the cross-sectional design that hampers the possibility to infer causality. Another important limitation is that we did not use a validated questionnaire to measure perceived work ability and this may have flawed the results.

Our study aimed to include all the working women treated for breast cancer in a metropolitan area during a three year-period, but the participation rate was only 53.3%. Similar response rates were re-

ported in other countries when exploring the same outcome (7, 30). Although there were no differences between participants and non-participants, except for the area of residency, selection bias cannot be ruled out.

Due to the cross-sectional design, the study could also suffer from differences in recall among women. The time between completing the questionnaire and cancer diagnosis and between treatment and return to work varied among women, leading to potential differences in recall.

Most of the variables included in the model were related to conditions existing before returning to work and therefore meet the temporal criteria to serve as predictors of reduced work ability upon returning to work.

We did not adjust for stage or other prognostic factors, as this information was unavailable: it was not collected in the questionnaire because of doubts regarding its reliability.

Returning to work after breast cancer diagnosis and treatment is a challenge for women wishing to do so. A successful return to work is considered part of the rehabilitation program in cancer survivors as work can positively affect quality of life and protect from health inequalities. Women treated for breast cancer are considered a target population for workplace-based return to work interventions due to the high prevalence of the disease among working-age women and to the long-term survival rate. By identifying factors able to influence a successful return to work and work retention, workplace measures and training programs for health care personnel and employers can be planned. Our study showed that almost half of the respondents perceived a reduced ability to work. Additionally, non-cohabitation, non-conservative treatment and working as a labourer were associated with reduced work ability. Indeed, besides affecting performance, work disability also appears to be associated with a feeling of discrimination and lack of support in the work environment, which might further worsen workers' wellbeing.

Programs aimed at improving knowledge among employers and co-workers could also be useful to reduce the gap that is often reported between what is provided in terms of support and what the cancer survivors perceive.

Further research is needed to confirm our results by means of prospective study-design in order to identify factors that could facilitate patient's return to work. The adoption of a validated questionnaire would also allow comparisons of the results with other studies. Despite these limitations, to our knowledge this is the first study carried out in an Italian setting to identify social, demographic and clinical factors associated with a reduced work ability upon returning to work among women treated for breast cancer. Practitioners and researchers should take advantage of this information to support return to work programs for breast cancer survivors.

NO POTENTIAL CONFLICT OF INTEREST RELEVANT TO THIS ARTICLE WAS REPORTED BY THE AUTHORS

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ACKNOWLEDGMENTS: *We are deeply grateful to all the women who participated in the study and thank Sara De Lisio, Chiara Giansante, Lucia Guerra, Marilena Manfredi, Adriana Pasquini for their support and contribution during the study.*



UNIVERSITÀ DEGLI STUDI DI MILANO
DIPARTIMENTO DI SCIENZE CLINICHE E DI COMUNITÀ

PROGRAMMA PRELIMINARE

La Sindrome delle Apnee Ostruttive del Sonno e la salute e sicurezza in ambito lavorativo

14 Dicembre 2018
Milano

Clinica del Lavoro L. Devoto
Aula Magna
Via S. Barnaba, 8

Programma

08:30-09:00	Registrazione partecipanti	
09:00-09:20	Presentazione del corso	M. De Benedetto, M. Bonzini
09:20-09:40	L'OSAS tra i disturbi del sonno	M. Zucconi
09:40-10:00	Disturbi del sonno e lavoro	G. Costa
I SESSIONE	OSAS: le dimensioni del problema	D. Passali
10:00-10:15	I disturbi respiratori ostruttivi del sonno	M. Mantero
10:15-10:30	Le complicanze neurovegetative e metaboliche	N. Montano, E. Tobaldini
10:30-10:45	Le complicanze e comorbidità cardiovascolari	C. Lombardi
10:45-11:00	Il punto di vista e il ruolo del Medico di Famiglia	V. Pappalepore
11:00-11:30	Coffee Break	
II SESSIONE	Diagnosi e soluzioni terapeutiche	L. Pignataro
11:30-11:50	Diagnostica endoscopica e chirurgia conservativa	F. Salamanca
11:50-12:10	Barbed Snore Surgery nel paziente OSAS	M. Mantovani, R. Trojsi
12:10-12:30	Il ruolo dell'odontoiatria	E. Manfredi
12:30-12:50	Il ruolo della chirurgia maxillo-facciale nel paziente OSAS	A.B. Gianni, D. Rossi
12:50-14:00	Pausa pranzo	
III SESSIONE	OSAS, mondo del lavoro e sicurezza stradale	G. Costa
14:00-14:20	OSAS, sonnolenza e sicurezza alla guida	S. Garbarino
14:20-14:40	OSAS ed idoneità alla guida dal punto di vista Medico Legale	P. Pelizza
14:40-15:00	Medicina del Lavoro in conducenti professionali: quali scenari	M. Bonzini
15:00-15:20	Infortuni e tutela dei lavoratori: il punto di vista di INAIL	A. Martini
IV SESSIONE	OSAS e... i vari soggetti coinvolti	L. Riboldi
15:20-15:35	OSAS e sicurezza: il punto di vista dei datori di lavoro	C. Fraconiti
15:35-15:50	Prospettive di ricerca in medicina del lavoro in tema di OSAS	P.L. Cocco
15:50-16:05	OSAS e benessere: il punto di vista dei pazienti	E. Brunello
16:05-16:20	OSAS e idoneità: esperienze da casi di idoneità "difficile"	L. Patrizi
16:20-16:35	L'esperienza del PDTA in regione Puglia	M. De Benedetto
16:35-16:50	Discussione	L. Riboldi
16:50-17:15	Take home messages e conclusioni	M. Bonzini, G. Costa
17:15-17:35	Compilazione questionario ECM	