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Received and needed social support at the workplace in Norwegian and Finnish stage 1 breast cancer survivors: A study from the Nordic Study Group of Cancer and Work (NOCWO)

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Abstract

Background. Cross-cultural studies of comparable patients can identify differences of health care services and point to issues of possible improvement. In this cross-sectional study we compared self-reported received and needed social support at the workplace of disease-free breast cancer survivors (BCSs) stage I from Norway and Finland. *Methods.* Age-matched samples of 135 BCSs from Norway and 148 from Finland were examined using a questionnaire including socio-demographic factors, employment data, measurements of social support at work from supervisors, colleagues and the occupational health service (OHS), and several other measurements. *Results.* Finnish BCSs had significantly higher education and a higher rate of full-time employment than Norwegian ones. With adjustment for education and work time, Finnish compared to Norwegian BCSs reported significantly less received social support from supervisors, while they received significantly more social support from OHS. No differences were observed in received support from colleagues between Finnish and Norwegian BCSs. Somatic health was most strongly associated with received and needed support from supervisors, colleagues and OHS. *Conclusions.* The differences in received and needed social support at work observed between Norwegian and Finnish BCSs treated for stage I disease challenge strengthening of OHS for Norwegian BCSs and increased attention by supervisors in Finnish BCSs.

Since 1980 the cancer organizations of the Nordic Countries have cooperated through The Nordic Cancer Union (NCU) with the aim of increasing research in cancer and implementing interventions based on findings from Denmark, Finland, Iceland, Norway, and Sweden. Collaborative research projects on a Nordic basis are common, and in 2002 NCU initiated a research project on work ability after cancer treatment in the Nordic countries and established the Nordic Study Group of Cancer and Work Life (NOCWO).

Studies have shown that social support from colleagues and supervisors is significantly associated with job satisfaction and with increased productivity through more feeling of job control and less perceived stress and job dissatisfaction [2]. Park et al. (2004) concluded that a climate of social support from colleagues, supervisors and the work place organization had a positive impact on the workers' psychological well-being and on the productivity of the organization [1]. A recent study indicated that support from colleagues and flexibility at work had a beneficial effect on cancer survivors' return to work, while ignorance and lack of support from supervisors had the opposite effect [2].

In a NOCWO study from Finland, Taskila et al. 2006 [3] showed that female cancer survivors both needed and received more social support at work than male survivors. However, 39% of women and 32% of men needed more social support than they received from the OHS. In their study, Taskila et al. used The Structural-Functional Social Support Scale (SFSS) a multidimensional instrument that measures the amount of received and needed social support at work as given by three main sources, namely supervisors, colleagues, and OHS [4].

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In another NOCWO study from Norway [5] we also reported on support at work using the The Demand-Control-Support Questionnaire (DCSQ) [6]. Support at work measured by the DCSQ did not show any significant gender differences in cancer survivors concerning support at the workplace. This finding was divergent to that of Taskila et al. based on the SFSS, and we therefore compared the support ratings as measured by the SFSS and the DCSQ in our Norwegian sample of breast cancer survivors (BCSs) ($N = 234$) and observed only a moderate correlation ($r = 0.41$, 17% explained variance). Since the DCSQ only was used in the Norwegian part of NOCWO, we wanted to investigate 'support at work' as measured by the SFSS among BCSs in both countries in order to explore these national differences further. Lack of cross-cultural studies concerning the work situation of cancer patients represented another background of our study, although the Nordic countries have a considerable tradition for comparative clinical research [7].

The present study thus explored received and needed 'support at work' from colleagues, supervisors and OHS as measured by self-report on the SFSS among Norwegian and Finnish BCSs with stage I disease, undergoing comparable treatment in both countries. Further we investigated to what extent nationality, socio-demographic variables, somatic and mental healths, as well as optimism as independent variables were associated with received or needed 'support at work' as dependent variables. Finally, we considered the relevance of differences in the regulations of health insurance systems and the regulations for OHS between the countries since they influence the work rehabilitation and adaptation of BCSs.

Methods

Patient sampling

The eligibility criteria of the NOCWO studies concerned patients with cancer diagnosis with good prognosis without recurrence and distant metastasis, but for this study the following selection criteria were applied: 1) Curative treatment of breast cancer stage I without metastases or subsequent relapse. 2) Age between 25 and 57 years at the time of diagnosis (the upper age limit was chosen in order to avoid closeness to the age of natural pensioning from 62 years an onwards), and primary treatment (surgery, chemotherapy) finished 2 to 6 years prior to the survey although ongoing adjuvant systemic hormone treatment was allowed for. 3) No new malignancy after primary treatment except baso-cellular skin cancer.

In 2003 the Nordic questionnaire was mailed to 620 Finnish BCSs of stage I and II diagnosed and treated in 1997 to 2001 and fulfilling the general NOCWO criteria recruited from the patient registry of the Department of Oncology of The Helsinki University Hospital. The Finnish patients had two written reminders. A total of 531 participated in the study (response rate 83%). The non-responding Finnish BCSs did not differ from those who were included with respect to age.

In 2004 the Nordic questionnaire with a national supplement was mailed to 427 eligible Norwegian BCSs of stage I and II diagnosed and treated at The Norwegian Radium Hospital in Oslo in 1998 to 2002. Among them 269 participated in the study (response rate 63%) after one reminder. Attrition analysis of the non-responding Norwegian women showed that they on the average were one year older ($p = 0.01$) than the responders.

For the present study we selected the subgroup of the BCSs responders from both countries who had been treated for stage I, had returned to work, and had delivered complete data on 'social support at work'. These criteria were fulfilled by 135 Norwegian and 145 Finnish BCSs, who comprised the final study sample.

Treatment issues

In both Norway and Finland BCSs with stage I were treated with local surgery (either radical mastectomy or lumpectomy without axillary lymph node dissection), which was followed by radiotherapy in case of lumpectomy. After mastectomy no radiotherapy was given, but dependent on histological grade, and/or hormone receptor status of the tumor tissue, adjuvant chemotherapy, hormone treatment, and/or regional lymph node irradiation were given.

Among the Finnish patients 93% had lumpectomy with radiotherapy and 7% had mastectomy, while the respective proportions were 69% and 31% among Norwegian BCSs ($p < 0.001$). The disease-related variables were obtained from the hospitals registers in both countries.

Sickness allowance in Norway and Finland (Table I)

Even if the cash benefits in case of illness are financed by the tax system in both Norway and Finland, the regulations for sickness allowance vary considerably. Everyone with an income from employment has the right to sick leave benefits in both countries [Table I]. In Norway there has been political consensus to include people with reduced

Table I. Overview of sickness and rehabilitation allowance in Norway and Finland*.

	Norway	Finland
Compensation for income lost by illness affecting regular work ability	Yes	Yes
Age boundaries	18–67 years	16–67 years
Length of payment	52 consecutive weeks	300 days (counting week days)
New period of sick allowance payment	After 26 weeks without sick allowance payment	Working for at least one year, unless another disease then compensation is paid normally.
Requirement for the payment of sickness allowance	Been at work for 4 weeks	Occupational activity at least 3 months
Amount of sickness allowance	Based on salary the last 4 weeks before the work incapacity; limit of EUR 50.109 during 52 weeks (2007).	Based on the earnings (income) for the recent year by final tax information (2007 the baseline is 2005); limit of EUR 45.221 for the period.
Self risk period or waiting period for sickness allowance	No, but the employer pays the first 16 days.	Yes, 10 days, but the employer is obliged to pay salary for eight first days of the sickness period; actual waiting period is 2 days.
Self report of sickness	Yes; 3 days 4 times for 12 month period. Employers in agreement with the authorities have 24 days for every 12 months period; 8 days continuously. Paid by the employer.	No
Doctor's sick note	Up to 4 weeks then new evaluation; plan of follow up for rehabilitation including employer and the insurance authority.	Need of rehabilitation assessed at the latest when sickness allow-ance has been received for 60 days.
During medical treatment after maximal weeks/days with sickness allowance	After a period of 52 weeks with sickness allowance.	After 300 days without returning to work; disability/unemploy-ment pension
The base of rehabilitation payment during rehabilitation program.	Calculated 66% of income during the year before first sick leave; limit EUR 50.109 year.	In most cases, the same as sickness allowance
Self risk days or waiting period for rehabilitation allowance after ended medical treatment.	No; at least 50% reduced work ability caused by sickness or medical treatment.	Yes, 10 days, except if the sickness occurs immediately after the sickness allowance period.

*Based on information from the Norwegian Labour and Welfare Organisation (NAV) at http://www.nav.no (17.12.2007) and The Social Insurance Institution of Finland (KELA) at http://www.kela.fi (17.12.2007).

health and disability in the labor market, and the Norwegian health insurance system has an opportunity to give economical compensation for extra expenses in order to keep or regain employment competence.

The sickness allowance in Finland is based on the applicant's taxable earnings the year before sickness. The employer is obliged to pay salary (sick pay) for the first eight days of the sickness period; thus the actual waiting period is two days (Table I). The Finnish social security system seems to allow retirement due to serious or longstanding illness or disability somewhat more easily than the Norwegian system [8].

The occupational health services in Norway and Finland

OHS in Norway is obligatory for all enterprises with $\geq$50 employees as part of the implementation of the systematic health, environment and safety concerns at the work place, and give advice on work-related rehabilitation. It is the responsibility of the employer to organize OHS for the enterprise. Organized OHS varies greatly according the size of enterprises, and it is estimated that around 50% of Norwegian enterprises with $\geq$50 employees and 23% of the enterprises with $\leq$10 employees have established OHS [9]. In Finland OHS is required by law, and the employers have to organize for preventive OHS for all workers regardless of the size, sector or form of the enterprise. The coverage of OHS was 76% of the employed labour force and 85% of the paid employees and wage-earners at the end of the year 2000 [10]. The OHS includes assessment of work-related hazards, prevention of problems through early intervention and promotion of health and work ability. Curative health service to the employees is included in 80% of the service agreements.

Measurements

Background variables. Socio-demographic characteristics included: age at survey, two levels of formal education ($<$13 years and $\geq$13 years), and dwelling status categorized as either cohabiting or living alone. Social classes were defined by grouping professions according to recommendations of the World Health Organization and an approximation to the international Erikson Goldthorpe Portocare social class schema using the Occupation

Classification 2000. In the analysis this variable was dichotomized into Social Class I+II and Social Class III [11]. Working time was characterized by having full-time or part-time work.

Quality of Life, optimism, physical and mental health. Quality of Life (QoL) was measured by the Medical Outcome Study Short Form 12 (SF 12) [12] resulting in scores on the physical (PCS) and mental (MCS) component summary scales. With norm data from the population of 50, lower scores mean reduced and higher values improved QoL.

The global health status was measured by item 1 of the SF-12 and was dichotomized into very good/good versus moderate/rather bad/bad health. The correlation between PCS and Global health status was $r = 0.10$.

Optimism was assessed by the Life Orientation Test-Revised (LOT-R) [13]. LOT-R measures the expectation of positive or negative outcome using 10 items of a 5-point scale from 0 (strongly disagree) to 4 (strongly agree), and the scores are summed up. Higher scores represent more optimism.

Anxiety/depression was measured by the Hospital Anxiety and Depression Scale (HADS), which is consisting of an anxiety subscale (HADS-A) and a depression subscale (HADS-D) [14]. Higher scores mean higher levels of anxiety or depression. Due to the correlation between HADS-A and HADS-D in our sample $r = 0.65$, we only used the anxiety ratings in the regression analyses.

The Work Ability Index (WAI) is a reliable and validated tool for measuring self-assessed work ability and reveals how well a worker thinks he/she is able to perform his/her work. The WAI was developed by the Finnish Institute of Occupational Health and Work Environment, and is commonly used as a measure of work ability in health examinations and workplace surveys [15]. The WAI covers several domains relevant to work ability. The symptom score investigates tiredness, nervousness, concentration problems, headache, palpitation, vertigo, nausea, chest pain, stomach ache, and insomnia scored on Likert scales with five response alternatives from 0 (never) to 4 (all the time). The total WAI symptom score is rated as the sum of symptom ratings, ranging from 0 (no symptoms) to 40 (maximum symptoms).

The WAI also has a domain for co-morbid diseases including: musculoskeletal disease, cardiovascular disease, respiratory disease, mental disorder or several mental health problems, metabolic disease, neurological or sensory disease, or other severe diseases diagnosed by a physician. Injuries leading to functional impairment are also included. The total number of co-morbid diseases reported was dichotomized into no co-morbidity or presence of co-morbidity (≥ 1 other disease).

The WAI also contains the domains of physical and mental work ability measuring how respondents rate their current work ability in relation to the physical or mental demands of their jobs. These items were rated on 5-point Likert scales that were dichotomized into very good/rather good and moderate/rather poor/very poor.

The Structural-Functional Social Support Scale (SFSS) is a multidimensional instrument especially addressing the structural (social network) and functional aspects of social relationships of people with severe diseases [3,4]. We used the 12 item version to measure the amount of received social support at work as given by supervisors, colleagues, and OHS. Each item is scored on a 5 point Likert scale from 1 (never) to 5 (much). The SFSS also covers needed social support from these three sources on a 3 point Likert scale from 1 (wanted more) to 3 (wanted less). The items covered by both received and needed support concerned: 1) contact while ill, 2) showing care and understanding, 3) giving good advice, and 4) took the illness into consideration. The item scores 1–4 were summed for supervisors, colleagues and OHS separately, but we also calculated a total score for these three sources on received and needed support.

In line with Taskila et al. [3], we separated the sample into two groups based on their scorings of needed support. The "needy" groups consisted of those BCSs who had rated "wanted more" (1) of needed support on at least one of the four items for each of the three sources of support. Those who scored: "I am satisfied" (2), or "I wanted less support" (3) on 'needed support', were classified as the "satisfied" group.

Statistics

The data were analyzed on SPSS for PC version 14.0. Continuous variables were analyzed by t-tests or by ANOVA with adjustments for the level of education and full-time/part-time work. Categorical variables were analyzed by χ^2-tests. Non-parametric tests were used as appropriate. Effect sizes (ES) were calculated for statistically significant differences on continuous variables and in 2×2 contingency tables. An ES ≥ 0.40 was considered as clinically significant [16,17]. Measures were examined for internal consistency by Cronbach's coefficient alpha. For the SFSS a principal component factor analysis with varimax rotation was performed.

Hierarchical linear regression analyses examined the associations between nationality, socio-demographic variables, health variables, anxiety, and optimism as independent variables and received and needed social job support as dependent variables. The strengths of the association were expressed by standardized values, explained variance (R^2), and change in explained variance (R^2-change). The significance level was set at $p < 0.05$ and all tests were two-tailed.

Ethics

In Norway the Regional Committee for Medical Research Ethics of South Norway and the Norwegian Data Inspectorate approved the study. In Finland the study was approved by the Ethics Committee for Research in Occupational Health and Safety. In Norway the participants signed written, informed consent forms. In Finland a response to the questionnaire was considered as written informed consent.

Results

Characteristics of the sample

The Finnish BCSs had higher levels of education ($p < 0.03$, ES = 0.26) than the Norwegian BCSs, and a higher rate of full time employment ($p < 0.001$, ES = 0.45). No statistically significant differences were observed between the two groups as to age, dwelling status or social class (Table II).

Adjusted for level of education and working time, the Finnish BCSs displayed poorer physical QoL ($p = 0.03$, ES = 0.26) and a higher level of anxiety ($p = 0.03$, ES = 0.25). The Finnish BCSs had significantly shorter periods of sick-leave related to their diagnosis and treatment compared to the Norwegian ones ($p = 0.003$ and ES = 0.40). The Finnish hBCSs also had longer time from diagnosis to survey ($p = 0.03$ and ES = 0.33) (Table II). Only the differences concerning working time and duration of sick-leave reached clinical significance (ES $\geq$ 0.40) among these findings.

Table II. Socio-demographic characteristics, quality of life, optimism, mental and physical health characteristics of the Norwegian and Finnish BCSs samples.

Variables	Norwegian BCSs (N = 135)	Finnish BCSs (N = 148)	P-value	Effect size
Age, mean (SD)	53.6 (5.5)	52.7 (5.8)	0.22	
Dwelling status N (%)			0.59	
Cohabiting	96 (73)	102 (70)		
Living alone	35 (27)	43 (30)		
Education			0.03	0.26
<13 years	69 (52)	56 (39)		
≥13 years	65 (48)	89 (61)		
Social class			0.06	
Social class I	74 (57)	64 (45)		
Social class II+III	57 (43)	78 (55)		
Working time, N (%)			<0.001	0.45
Full time	92 (68)	127 (88)		
Part time	43 (32)	18 (12)		
Continuous measures[a]	*Mean (SD)*	*Mean (SD)*		
SF-12 Physical Composite Scale	41.0 (5.0)	39.7 (4.9)	0.03	0.26
SF-12 Mental Composite Scale	42.9 (5.8)	43.9 (5.6)	0.14	
LOT Optimism scale	22.0 (5.3)	22.3 (5.0)	0.98	
HADS Anxiety score	4.9 (3.7)	5.8 (3.5)	0.03	0.25
HADS Depression score	2.7 (3.0)	3.2 (3.0)	0.12	
Somatic symptom score	10.9 (5.6)	11.4 (5.3)	0.39	
Sick-leave in months related to diagnosis and treatment	6.2 (5.0)	4.7 (2.9)	0.003	0.40
Months from diagnosis to the time of survey	4.0 (1.3)	4.5 (1.5)	0.03	0.33
Categorical measures[a]	*N (%)*	*N (%)*		
Global health status			0.28	
Very good/good	100 (75)	116 (80)		
Moderate/rather bad/bad	34 (25)	29 (20)		
Presence of co-morbid diseases	63 (47)	66 (46)	0.85	

[a]Adjusted for level of education and work time.

Received and needed social support at work (SFSS)

Most of the women (Finnish BCSs 88% and Norwegian 87%) had informed both their supervisor and their colleagues about their breast cancer (Table III).

The Norwegian BCSs received more support from their supervisors ($p = <0.001$, ES = 0.54) than the Finnish ones, while the opposite was true for received support from OHS ($p = <0.001$, ES = 0.47) (Table III). No significant differences between the Finnish and Norwegian BCSs were observed for received support from colleagues.

On the dimensional measure of needed support, no significant differences were observed between the Norwegian and Finnish BCSs. As to needed support defined categorically, Norwegian BCSs were significantly more "needy" of support from colleagues than the Finnish ones ($p = 0.04$, ES = 0.23). No significant differences were observed as to need for support from supervisors, OHS or any of these sources.

In the stepwise hierarchical regression analysis being Norwegian BCSs, being in part-time work and having a higher level of optimism were significantly associated with having received more support from supervisors (Table IV).

For received and needed social support at work only the results for the five steps of nationality, socio-demographic factors, somatic health, mental health and optimism are presented (Table V). Our model explained from 10.0% to 17.4% of the variance in received and needed social support (as seen from the R^2-row under optimism).

The national step (Norway vs. Finland) was significant for support from supervisors and OHS. Socio-demographic factors were significantly associated with received support from OHS and with received support from any source, and two of eight support measures were significantly associated with socio-demographic factors. Somatic health was significantly associated with all the needed support items as well as received support from supervisors and colleagues, but not from OHS. Somatic health was thus significantly associated with seven out of eight SFSS measures. Mental health was not significantly related to any measures of received or

Table III. Information about cancer at workplace and levels of received and needed social support from supervisors, colleagues and the occupational health services of the Norwegian and Finnish BCSs samples.

Variables	Norwegian BCSs (N = 135)	Finnish BCSs (N = 148)	P	Effect Size
Informed at workplace, N (%)			0.96	
Colleagues or supervisor only	18 (13)	17 (12)		
Both colleagues and supervisor	117 (87)	128 (88)		
SFSS measurement[a]	*Mean (SD)*	*Mean (SD)*		
Received support from:				
Supervisors	12.0 (4.2)	9.7 (4.3)	<0.001	0.54
Colleagues	12.8 (3.5)	11.6 (4.4)	0.06	
Occupational health services	5.5 (3.2)	7.2 (4.0)	<0.001	0.47
All of them	30.3 (8.5)	28.4 (9.8)	0.45	
Needed support from:				
Supervisors	7.2 (1.2)	7.3 (1.1)	0.39	
Colleagues	7.4 (1.1)	7.7 (0.9)	0.13	
Occupational health services	6.5 (1.8)	7.0 (1.5)	0.08	
All of them	20.7 (3.7)	21.7 (3.0)	0.05	
	N (%)	*N (%)*		
Needed support from:				
Supervisors				
Needy	53 (39)	45 (30)	0.16	
Satisfied	82 (61)	103 (70)		
Colleagues				
Needy	40 (30)	29 (20)	0.04	0.23
Satisfied	95 (70)	119 (80)		
Occupational health services				
Needy	55 (41)	53 (36)	0.45	
Satisfied	80 (59)	95 (64)		
Any source				
Needy	80 (59)	71 (48)	0.05	
Satisfied	55 (41)	77 (52)		

[a]Adjusted for level of education and work time.

Table IV. Hierarchical multiple linear regression analysis with Received support frompersons at working place as dependent variable.

Independent variables	Received support from supervisors				
	Beta	P	R^2	R^2–change	P
Step 1. Norwegian versus Finnish BCSs (0: Finnish, 1: Norwegian)	0.201	0.001	0.065	–	0.001
Step 2. Socio-demographic factors					
Age (increasing)	0.007	0.92			
Level of education (0: ≥13 years, 1: <13 years)	0.100	0.19			
Social class (0: Class I, 1: Class II+III)	0.020	0.80			
Paid working hours (0: full time, 1: part time)	0.197	0.002			
Dwelling status (0: Cohabiting, 1: Living alone)	0.003	0.96	0.099	0.034	0.09
Step 3. Somatic health variables					
General health status (high is better)	0.016	0.82			
Physical work ability (0: very good/ good, 1: moderate/poor)	−0.149	0.05			
Physical Quality of life (PCS-12) (worse is lower)	0.058	0.36			
Somatic symptom score (worse symptom score is higher)	−0.116	0.18			
Presence of comorbidity (0: None; 1: One or more disease)	−0.103e	0.11	0.150	0.051	0.01
Step 4. Mental health and mental work variables					
Anxiety (worse is higher)	0.160	0.07			
Mental work ability (0: very good/ good, 1: moderate/poor)	0.018	0.81	0.154	0.004	0.59
Step 5. Optimism (more is higher)	0.17	0.03	0.170	0.017	0.03

needed support. Finally, optimism was significantly associated with received support from supervisors and with received support from any source, and optimism thus was significantly associated with two of eight support measures.

Discussion

The main finding of this comparative study of self-reported social support at the workplace of BCSs treated for stage I disease, was that Norwegian BCSs received significantly more support from their supervisors while Finnish BCSs experienced significantly more support from OHS.

No significant differences between the two countries were found for received support from colleagues or for needed (wanted more) support from supervisors or OHS. In the multivariate regression analyses somatic health was most strongly associated with both received and needed support followed by nationality. Mental health was not associated with any type of support. Socio-demographic factors and optimism were not associated with needed support, but showed some significant associations with received support. We also mention that Finnish BCSs had a significantly higher proportion of full-time work, shorter time on sick leave after cancer treatment, and longer time from diagnosis to the survey.

Table V. Hierarchical multiple linear regression analysis with received and needed social support at the workplace as dependent variable.[a]

	Received support from supervisors			Received support from colleagues			Received support from OHS			Received support any source		
	R^2	R^2-*ch*	*P*	R^2	R^2-*ch*	*P*	R^2	R^2-*ch*	*P*	R^2	R^2-*ch*	*P*
Step 1. Norway versus Finland	0.065	0.065	0.001	0.015	0.015	0.05	0.050	0.050	<0.001	0.007	0.007	0.19
Step 2. Demography	0.099	0.034	0.09	0.043	0.028	0.20	0.112	0.062	0.004	0.062	0.056	0.01
Step 3. Somatic health	0.150	0.051	0.01	0.107	0.064	0.004	0.121	0.009	0.78	0.117	0.055	0.01
Step 4. Mental health	0.154	0.004	0.59	0.109	0.002	0.81	0.129	0.008	0.33	0.122	0.005	0.53
Step 5. Optimism	0.170	0.017	0.03	0.116	0.007	0.16	0.136	0.007	0.16	**0.139**	**0.017**	0.03
	Needed support from supervisors			Needed support from colleagues			Needed support from OHS			Needed support any source		
	R^2	R^2-*ch*	*P*	R^2	R^2-*ch*	*P*	R^2	R^2-*ch*	*P*	R^2	R^2-*ch*	*P*
Step 1. Norway versus Finland	0.005	0.005	0.27	0.008	0.008	0.17	0.015	0.015	0.06	0.022	0.022	0.02
Step 2. Demography	0.024	0.019	0.45	0.027	0.020	0.43	0.028	0.013	0.70	0.034	0.012	0.68
Step 3. Somatic health	0.138	0.114	<0.001	0.102	0.071	0.03	0.116	0.088	0.001	0.126	0.092	<0.001
Step 4. Mental health	0.142	0.005	0.53	0.100	0.002	0.73	0.130	0.014	0.16	0.130	0.004	0.60
Step 5. Optimism	0.144	0.001	0.54	0.104	0.004	0.32	0.143	0.013	0.07	0.131	0.001	0.65

[a]Significant associations in boldface. R^2: Explained variance of the steps. R^2-ch: Change in explained variance at each step.

They also showed higher level of anxiety and poorer physical QoL than Norwegian BCSs.

We found that somatic health was strongly associated with received and needed support at the workplace, and this is of relevance for follow-up programs of BCSs when evaluating the opportunities to continue in the working force. The significant associations between needed social support at the workplace and poorer somatic health indicate that optimal treatment of co-morbid somatic diseases, symptoms, and dysfunctions are important issues for employed BCSs of stage I after treatment in order to keep them as fit as possible for work [2]. Other studies have also indicated the importance of non-malignant co-morbidity for the work function of cancer survivors [18]. Among Finnish cancer survivors co-morbidity also had a strong association with impaired physical as well as mental work ability [19].

Our multivariate models explained only 10 to 17% of the variance in the received and needed support variables, indicating that many factors not measured in our study must be of relevance for 'support at work'. For example, the rules for sickness allowance are different in Norway and Finland, although they are based on the similar ideas of social and health policy (Table I).

In line with Taskila et al. [3] we found that BCSs received most support from their colleagues, but needed more support from their supervisors and OHS. That a higher proportion of Finnish BCSs worked full-time than the Norwegian BCSs is in accordance with findings reported for Finnish and Norwegian women in general [7].

The period of treatment or type of treatment could hardly be related to the differences in 'support at work' since they showed no significant associations, even though 7% of Finnish BCSs had mastectomy in contrast to 31% among Norwegian BCSs.

A more hypothetical explanation could be the differences in the labor market and the national health insurance system between Norway and Finland, but our data did not cover such issues. The fact that Finnish BCSs were more often in full-time work, had shorter sick leave, and showed higher level of anxiety than the Norwegian BCs could indicate that the Finnish BCSs experienced more work stress than the Norwegian BCs. This more stressed work situation could both result from, and lead to, a more distant and cordial relations to supervisors in Finland than in Norway.

A likely explanation for the Finnish BCSs' satisfaction with support from OHS might be based on the more extensive organization and coverage of OHS in Finland than in Norway. Another explanation might be that the higher level of education, more full-time working hours, and shorter sick leave period by the Finnish BCSs create higher expectations of receiving support from OHS. Another alternative is that OHS is more active in curative medicine in Finland than in Norway, and Finnish employees use the OHS for somatic and mental health worries during work time. In this survey we have not been able to examine such factors, but although hypothetical, these reflections may be of potential importance regarding adaptation to work after cancer treatment. In Finland the authorities regularly follow-up the quality of OHS, and many big and medium-sized enterprises have voluntarily included curative care in that service, which is rather different from the situation in Norway [10].

Of course, expected support is related for previous experience at the workplace formed before BCSs got their cancer. However, it can be seen as encouraging that 60–70% of BCSs in both countries were satisfied with support received from supervisors or had even expected less support. This finding combined with the high degree of openness concerning their cancer, weight against stigmatization of BCSs at their workplace in our sample.

Strength and weaknesses. Comparing similarities and differences between countries often have problems due structural differences, but may also give important information of relevance for the care of cancer survivors. Other factors than the disease or treatment are important as the regulations of sick leave and opportunities to work related rehabilitation.

In the total sample of cancer survivors in this NOCWO project, the response rate was 83% in Finland and 60% in Norway respectively ($p < 0.001$), which could imply both better representativity of the Finnish sample as well as less risk of selection bias. However, attrition analyses of both the Norwegian and the Finnish samples did not show significant differences [3,5]. There is a risk that a relatively high proportion of women with better psychosocial resources participated in the study in both countries. The significant difference in the proportion of lumpectomy versus mastectomy was not adjusted for in this study. Overall our study was based on a relatively large sample of BCSs who in regards to treatment were relatively homogeneous with the majority getting lumpectomy with radiotherapy and a minority mastectomy.

Several of our instruments are well-established, reliable, and valid and used in international comparative health research. However, the social support at work instrument (SSFF) which is pivotal to our study, has to our knowledge not been used outside Finland before, and the psychometric properties are not well-established.

In studies comparing similarities and differences between countries cultural, political and practical consequences of laws and regulations need to bee taken into account when interpreting the results. The availability of different kinds of part-time pensions is a central factor when it comes to the part-time employment of elderly employees. In Norway, it is rather common to retire gradually by reducing working hours. In recent years, partial pension has become very popular in Finland as well, especially after the temporary reform in 1998 that lowered the eligibility age to 56 years [20].

Conclusion

Finnish and Norwegian BCSs with stage I disease had similar levels of total received and needed support at their workplace. However, Finnish BCSs got significantly less social support from supervisors than Norwegian ones, while they got more support from OHS. Somatic health was the main factor associated with received and needed social support at the workplace. The findings indicate the need to improve social support in general, especially in relation to supervisors in Finland and to OHS in Norway. The relevance of somatic health for support at the workplace seems obvious. Our finding of national differences may be due to differences in OHS, health insurance system and the work market regulations, but this is in need of further investigation.

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SBG, SDF, MLL and AAD were all involved in designing the study. SBG and AAD analyzed the data. SBG, SDF and AAD reviewed the data analyses. All authors were involved in the final analyses and in the conclusions. SBG wrote the first draft of the manuscript to which all authors subsequently contributed. All authors read and approved the final manuscript.

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