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Prognostic factors for return to work in breast cancer survivors (Review)

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[Prognosis Review]

Prognostic factors for return to work in breast cancer survivors

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ABSTRACT

Background

Breast cancer is the most common type of cancer in women around the world. Large numbers of people diagnosed with breast cancer are working at the time of diagnosis. Accumulating evidence suggests that breast cancer survivors participate less often in paid work compared to others. Return to work among breast cancer survivors is multifactorial. It is currently unknown which factors are associated with return to work in breast cancer survivors. Therefore, it is important to systematically review and synthesize the literature on the association between sociodemographic, breast cancer-related, other health-related, personal, and work-related factors and return to work in this group of people.

Objectives

The objective is to systematically review and synthesize the literature on the association between sociodemographic, breast cancer-related, other health-related, personal, and work-related factors and return to work in the 24 months following breast cancer diagnosis among breast cancer survivors having paid work at the time of diagnosis.

Search methods

The search strategy included electronic searches in OVID/MEDLINE, Embase.com, EBSCOhost/CINAHL with Full Text, EBSCOhost/PsycINFO, Clarivate Analytics/Web of Science Core Collection and Wiley/Cochrane Library from inception up to 20 January 2023, as well as handsearching references of relevant reviews, included studies, and Google Scholar.

Selection criteria

The following inclusion criteria were applied:

- The type of study is a prospective cohort study, retrospective cohort study with time lag between assessment of prognostic factor and outcome, or prognosis study based on a randomized controlled trial.

- The study sample included people diagnosed with breast cancer, having paid work at the time of their breast cancer diagnosis.

- At least one variable as specified in our variable framework was studied.

- Return to work (yes/no), or time to return to work was assessed somewhere between one and 24 months of follow-up.

- The article type is an original research article (commentaries, reviews, and editorials were excluded).

- Full text of the article is available.

- The article was published in a peer-reviewed journal.

Data collection and analysis

Study characteristics and estimates of unadjusted and adjusted associations between one of the variables from the pre-defined variable framework and return to work were extracted. Risk of bias was assessed using the Quality in Prognosis Studies (QUIPS) tool. When at least four adjusted or four unadjusted measures of association (e.g. Odds Ratio (OR)) were available and more or less comparable in terms of how the measures of association were included in the analysis of the original study, a meta-analysis was conducted.

Main results

The systematic searches yielded 14,799 records with 2 identified via other sources. The systematic searches yielded 8486 references after duplicates were removed. We assessed 280 full-text articles for eligibility and excluded 249, including one article that was classified as 'awaiting classification' as it required professional translation. This left 31 articles based on 19 cohorts that fulfilled our inclusion criteria. Seven of the 19 studies could be included in one or more meta-analyses with a total of 2473 participants. All but one study were conducted in either Europe or the USA. The return to work rate ranged from 56% to 88%.

From our prespecified variable framework, altogether 35 variables were studied in one or more included studies as prognostic factors. From these, we could combine five factors in the meta-analyses.

- We found low-quality evidence that **higher age** is associated with lower odds of return to work in an adjusted analysis (pooled adjusted OR 0.96, 95% confidence interval (CI) 0.94 to 0.98; 4 studies, 1333 participants).

- We found low-quality evidence that **lower level of education** is associated with lower odds of return to work in an unadjusted analysis (pooled unadjusted OR 0.40, 95% CI 0.29 to 0.55; 4 studies, 1680 participants), but not in an adjusted analysis (pooled adjusted OR 0.60, 95% CI 0.33 to 1.08; 4 studies, 1147 participants).

- We found low-quality evidence that **not having a partner** is not associated with return to work in an unadjusted analysis (pooled unadjusted measures of association: 0.91 95% CI 0.67 to 1.23; 4 studies, 1680 participants).

- We found low-quality evidence that **receiving chemotherapy** was associated with lower odds of return to work in an unadjusted analysis (pooled unadjusted measures of association: 0.48, 95% CI 0.31 to 0.73; 5 studies, 1766 participants).

- We found low-quality evidence that **receiving radiotherapy** is not associated with return to work, respectively (pooled unadjusted measures of association: 1.03, 95% CI 0.64 to 1.17; 4 studies, 1680 participants).

Due to the low number of included studies that measured the outcome, time to return to work, it was not possible to pool data of these studies.

Authors' conclusions

We found that higher age and receiving chemotherapy may be associated with lower odds of returning to work in breast cancer survivors (low-quality evidence; for chemotherapy, only pooled unadjusted results were available). Results regarding educational level are inconclusive. We furthermore found that there was no statistically significant adjusted association between having a partner and receiving radiotherapy (low-quality evidence; only unadjusted results were available). Further research is warranted to identify those breast cancer survivors who are at higher risk of not returning to work, so that they can receive timely support.

PLAIN LANGUAGE SUMMARY

Which factors are related to return to work in breast cancer survivors?

Key messages

Breast cancer survivors who are older and who receive chemotherapy may be at higher risk of not returning to work. Results regarding educational level were inconclusive. Further research is warranted to identify those breast cancer survivors who are at higher risk of not returning to work, so that they can receive timely support.

What is breast cancer? What is return to work, and why is it important?

Breast cancer is the most common type of cancer in women around the world and many people diagnosed with breast cancer are working at the time of diagnosis. Accumulating evidence suggests that breast cancer survivors participate less often in paid work compared to

'healthy' people. Returning to work after a breast cancer diagnosis is important to breast cancer survivors, because it contributes to quality of life in several ways. In this Cochrane review, we define return to work as having returned to paid work for any number of hours in the cancer survivor's own or substitute work.

What did we want to find out?

We wanted to find out if sociodemographic, breast cancer-related, other health-related, personal, and work-related factors are related to return to work in the two years following a breast cancer diagnosis among survivors who had paid work around the time of diagnosis.

What did we do?

We searched for studies that investigated factors that are likely to be *changeable* to help clinical practice (including occupational health care) and employers with developing interventions aimed at enhancing the return to work of people with breast cancer. We also searched for studies that investigated factors that are *non-changeable* to help clinical practice (including occupational health care) to identify breast cancer survivors at higher risk of loss of employment who may need specific support. We compared and summarized the results of the studies and rated our confidence in the evidence.

What did we find?

We included 19 relevant studies. We found that older survivors may be less likely to return to work. Receiving chemotherapy may be associated with a lower likelihood of returning to work. Results regarding educational level are inconclusive. Having a partner and receiving radiotherapy seem not to be associated with returning to work. Further research is warranted to identify those at a higher risk of not returning to work, so that they can receive timely support.

What are the limitations of the evidence?

We have little confidence in the evidence because: 1) there was too much variety in how studies were conducted, 2) there were not enough studies to be certain about the results, and 3) not all the studies provided data required for our analyses.

How up to date is this evidence?

The authors searched for studies that had been published up to 20 January 2023.

SUMMARY OF FINDINGS

Summary of findings 1. Association of age with return to work in breast cancer survivors

Patient or population: breast cancer survivors **Setting: in paid employment at breast cancer diagnosis** **Association: Age (measured continuously)**				
	Meta-analysis relative effect (95% CI)	**№ of participants (studies)**	**Certainty of the evidence (GRADE)[1=]**	**Comments**
Adjusted - Return to work follow-up closest to 12 months	**pooled Odds Ratio** 0.96 (0.94 to 0.98)	1333 (4 cohorts)	⊕⊕⊖⊖ Low[1]	**Limitations (ROB):** Serious **Inconsistency:** Not able to assess[2] **Indirectness:** Not serious **Imprecision:** Not serious **Publication/reporting bias:** Not able to assess[2] **Effect size reported:** Very small

[1]GRADE Guidelines 28 (Foroutan 2020):
High: We are very confident that the variation in risk associated with the prognostic factor (probability of future events in those with/without the prognostic factor) lies close to that of the estimate.
Moderate: We are moderately confident that the variation in risk associated with the prognostic factor (probability of future events in those with/without the prognostic factor) is likely to be close to the estimate, but there is a possibility that it is substantially different.
Low: Our certainty in the estimate is limited: the variation in risk associated with the prognostic factor (probability of future events in those with/without the prognostic factor) may be substantially different from the estimate.
Very low: We have very little certainty in the estimate: the variation in risk associated with the prognostic factor (probability of future events in those with/without the prognostic factor) is likely to be substantially different from the estimate.
[2] Due to the low number of studies included in the meta-analysis

Summary of findings 2. Association of level of education with return to work in breast cancer survivors

Patient or population: breast cancer survivors **Setting: in paid employment at breast cancer diagnosis** **Association: Educational level (measured categorically with high as reference category)**				
	Meta-analysis relative effect (95% CI)	**№ of participants (studies)**	**Certainty of the evidence (GRADE)**	**Comments**

Unadjusted - Return to work follow-up closest to 12 months	**pooled risk estimate** 0.40 (0.29 to 0.55)	1680 (4 cohorts)	⊕⊕⊖⊖ Low[1]	**Limitations (ROB):** Serious **Inconsistency:** Not able to assess[2] **Indirectness:** Not serious **Imprecision:** Not serious **Publication/reporting bias:** Not able to assess[2] **Effect size reported:** Moderate
Adjusted - Return to work follow-up closest to 12 months	**pooled risk estimate** 0.65 (0.42 to 1.02)	1146 (4 cohorts)	⊕⊕⊖⊖ Low[1]	**Limitations (ROB):** Serious **Inconsistency:** Not able to assess[2] **Indirectness:** Not serious **Imprecision:** Not serious **Publication/reporting bias:** Not able to assess[2] **Effect size reported:** Moderate

[1]GRADE Guidelines 28 (Foroutan 2020):
High: We are very confident that the variation in risk associated with the prognostic factor (probability of future events in those with/without the prognostic factor) lies close to that of the estimate.
Moderate: We are moderately confident that the variation in risk associated with the prognostic factor (probability of future events in those with/without the prognostic factor) is likely to be close to the estimate, but there is a possibility that it is substantially different.
Low: Our certainty in the estimate is limited: the variation in risk associated with the prognostic factor (probability of future events in those with/without the prognostic factor) may be substantially different from the estimate.
Very low: We have very little certainty in the estimate: the variation in risk associated with the prognostic factor (probability of future events in those with/without the prognostic factor) is likely to be substantially different from the estimate.
[2] Due to the low number of studies included in the meta-analysis

Summary of findings 3. Association of partner status with return to work in breast cancer survivors

Patient or population: breast cancer survivors **Setting: in paid employment at breast cancer diagnosis** **Association: Partner status (measured categorically with no partners as reference category)**				
	Meta-analysis relative effect (95% CI)	**№ of participants (studies)**	**Certainty of the evidence (GRADE)**	**Comments**
Unadjusted - Return to work follow-up closest to 12 months	**pooled risk estimate** 0.91 (0.67 to 1.23)	1680 (4 cohorts)	⊕⊕⊖⊖ Low[1]	**Limitations (ROB):** Serious **Inconsistency:** Not able to assess[2] **Indirectness:** Not serious **Imprecision:** Not serious

				Publication/reporting bias: Not able to assess[2] **Effect size reported:** very small

[1]GRADE Guidelines 28 (Foroutan 2020):
High: We are very confident that the variation in risk associated with the prognostic factor (probability of future events in those with/without the prognostic factor) lies close to that of the estimate.
Moderate: We are moderately confident that the variation in risk associated with the prognostic factor (probability of future events in those with/without the prognostic factor) is likely to be close to the estimate, but there is a possibility that it is substantially different.
Low: Our certainty in the estimate is limited: the variation in risk associated with the prognostic factor (probability of future events in those with/without the prognostic factor) may be substantially different from the estimate.
Very low: We have very little certainty in the estimate: the variation in risk associated with the prognostic factor (probability of future events in those with/without the prognostic factor) is likely to be substantially different from the estimate.
[2] Due to the low number of studies included in the meta-analysis.

Summary of findings 4. Association of receiving chemotherapy with return to work in breast cancer survivors

Patient or population: breast cancer survivors **Setting: in paid employment at breast cancer diagnosis** **Association: receipt of chemotherapy (measured dichotomously with not receiving chemotherapy as the reference category)**				
	Meta-analysis relative effect (95% CI)	**№ of participants (studies)**	**Certainty of the evidence (GRADE)**	**Comments**
Unadjusted - Return to work follow-up closest to 12 months	**pooled risk estimate** 0.48 (0.31 to 0.73)	1766 (5 cohorts)	⊕⊕⊖⊖ Low[1]	**Limitations (ROB):** Serious **Inconsistency:** Not able to assess[2] **Indirectness:** Not serious **Imprecision:** Not serious **Publication/reporting bias:** Not able to assess[2] **Effect size reported:** Moderate

[1]GRADE Guidelines 28 (Foroutan 2020):
High: We are very confident that the variation in risk associated with the prognostic factor (probability of future events in those with/without the prognostic factor) lies close to that of the estimate.
Moderate: We are moderately confident that the variation in risk associated with the prognostic factor (probability of future events in those with/without the prognostic factor) is likely to be close to the estimate, but there is a possibility that it is substantially different.
Low: Our certainty in the estimate is limited: the variation in risk associated with the prognostic factor (probability of future events in those with/without the prognostic factor) may be substantially different from the estimate.
Very low: We have very little certainty in the estimate: the variation in risk associated with the prognostic factor (probability of future events in those with/without the prognostic factor) is likely to be substantially different from the estimate.
[2] Due to the low number of studies included in the meta-analysis.

Summary of findings 5. Association of receiving radiotherapy with return to work in breast cancer survivors

Patient or population: breast cancer survivors **Setting: in paid employment at breast cancer diagnosis** **Association: receipt of radiotherapy (measured dichotomously with not receiving radiotherapy as the reference category)**				
	Meta-analysis relative effect (95% CI)	**№ of participants (studies)**	**Certainty of the evidence (GRADE)**	**Comments**
Unadjusted - Return to work follow-up closest to 12 months	**pooled risk estimate** 1.03 (0.64 to 1.67)	1666 (4 cohorts)	⊕⊕⊖⊖ Low[1]	**Limitations (ROB):** Serious **Inconsistency:** Not able to assess[2] **Indirectness:** Not serious **Imprecision:** Not serious **Publication/reporting bias:** Not able to assess[2] **Effect size reported:** Moderate

[1]GRADE Guidelines 28 (Foroutan 2020):
High: We are very confident that the variation in risk associated with the prognostic factor (probability of future events in those with/without the prognostic factor) lies close to that of the estimate.
Moderate: We are moderately confident that the variation in risk associated with the prognostic factor (probability of future events in those with/without the prognostic factor) is likely to be close to the estimate, but there is a possibility that it is substantially different.
Low: Our certainty in the estimate is limited: the variation in risk associated with the prognostic factor (probability of future events in those with/without the prognostic factor) may be substantially different from the estimate.
Very low: We have very little certainty in the estimate: the variation in risk associated with the prognostic factor (probability of future events in those with/without the prognostic factor) is likely to be substantially different from the estimate.
[2] Due to the low number of studies included in the meta-analysis.

BACKGROUND

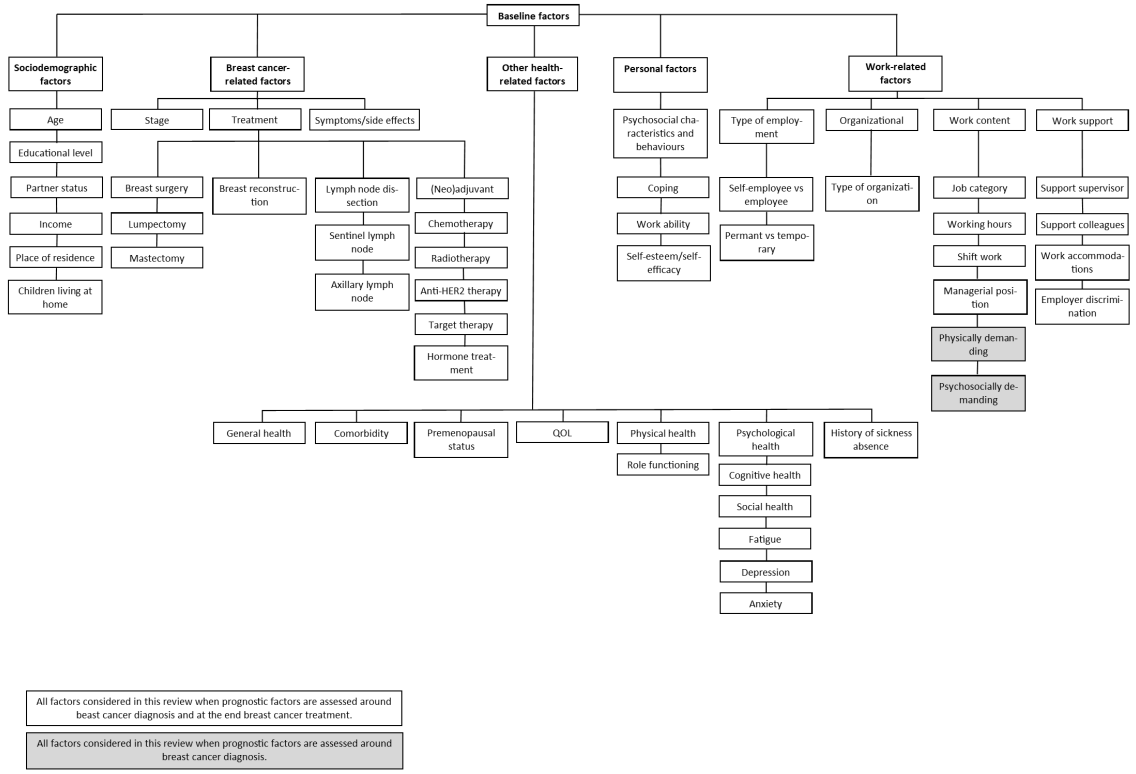
Description of the health condition and context

Breast cancer is the most common type of cancer in women around the world (Bray 2018). Data acquired from the Global Cancer Project (Global Cancer Observatory: Cancer today (GLOBOCAN)) indicated that the incidence of breast cancer in 2018 was more than two million worldwide (Bray 2018). The survival rate of breast cancer has increased in recent years (European Network of Cancer Registries (ENCR) 2021; Netherlands Cancer Registery 2021). The overall five-year survival rate of breast cancer diagnosed in the period 2000 to 2007 was approximately 88% in Europe (European Network of Cancer Registries (ENCR) 2021) while international differences also exist, with five-year survival for breast cancer in Australia around 90% and 66% in India (Allemani 2018). Around 50% of the people diagnosed with breast cancer are of working age (European Network of Cancer Registries (ENCR) 2021) in Europe, North America and Oceania, while people in Africa and Asia are in general younger when diagnosed with breast cancer (Arnold 2022). It is thus expected that an even larger proportion of the people diagnosed with breast cancer in Africa and Asia are of working age. With the overall employment rate approximately around 70% in Europe (Eurostat 2021; Netherlands Statistics 2021) and about 68% in OECD countries (OECD 2023), it can be deduced that many people diagnosed with breast cancer are working at the time of diagnosis. This number is expected to increase due to policies to extend working lives in many countries. This could impact those aged 65 to 70 years in particular, in which there is a higher incidence of breast cancer compared to younger age groups in Europe, North America and Oceania (European Network of Cancer Registries (ENCR) 2021; Netherlands Cancer Registery 2021).

Description of the prognostic factors

We conducted a review on prognostic factors for returning to work. The following domains of factors were included: sociodemographic factors (e.g. age, educational level), breast cancer-related factors (e.g. stage, treatment), other health-related factors (e.g. fatigue), personal factors (including psychological/psychosocial factors, e.g. coping), and work-related factors (e.g. job category). The prognostic factors that were studied in this review have been prespecified based on a pilot on how frequently they were studied in a short list of six potentially relevant studies derived from a preliminary search in PubMed. As such, it should be noted that the list of prognostic factors is not comprehensive from a theoretical perspective, but based on expert knowledge of previous empirical work. The variable framework containing an overview and description of each prespecified prognostic factor included in this review can be found in Appendix 1 and Figure 1. We distinguished two time points for the assessment of prognostic factors: 1) around breast cancer diagnosis, and 2) at the end of adjuvant breast cancer treatment (excluding hormone therapy which generally takes 5 to 10 years). The follow-up of this review is 24 months. The rationale for distinguishing between these two time points is that whether adjuvant treatment such as chemotherapy is needed may be unknown at diagnosis, but is hypothesized to be an important prognostic factor for returning to work (Wang 2018). Furthermore, it is known from previous research that breast cancer-related side effects are associated with returning to work, but are likely to be unknown around the moment of the breast cancer diagnosis (Spelten 2002). In the case of multiple assessments of the same prognostic factor, the risk estimates from the factor measured at the time point nearest to the breast cancer diagnosis or nearest to the end of adjuvant cancer treatment, except for hormone treatment, were chosen.

Figure 1. Figure 1. All factors considered in this review when prognostic factors are assessed around breast cancer diagnosis and at the end of breast cancer treatment



Health outcomes

The health outcome is return to work (yes/no) or time to return to work in the 24 months following breast cancer diagnosis. Return to work was defined as having returned to paid work for any number of hours in the cancer survivor's own or substitute work. The time assessment point closest to 12 months was extracted, with one month as the lower limit and 24 months as the upper limit. Time to return to work was defined as time from breast cancer diagnosis/baseline/first day of sick-leave to return to paid work for any number of hours in the cancer survivor's own or substitute work. The time point closest to 12 months was extracted, with 24 months as the upper limit.

Why it is important to do this review

Accumulating evidence suggests that breast cancer survivors participate less often in paid work compared to 'healthy' persons (De Boer 2009). This is unfortunate, as paid work is important for breast cancer survivors' quality of life (Duijts 2017). In the past decades, we have seen an increase in studies on prognostic factors for return to work in breast cancer survivors, concluding that return to work is associated with a range of sociodemographic, breast cancer-related, and work-related factors (e.g. Spelten 2002; Su 2018; Wang 2018). From a theoretical point of view, it is not expected that one single prognostic factor is of influence. Instead, returning to work among breast cancer survivors is multifactorial (Feuerstein 2010). It is currently unknown which factors are associated strongly with return to work in breast cancer survivors. Therefore, it is important not to focus on one single factor, but to systematically review and synthesize the literature on sociodemographic, breast cancer-related, other health-related, personal, and work-related factors that are associated with returning to work in this population.

A literature synthesis should include both modifiable and non-modifiable prognostic factors. The identification of prognostic factors for the return to work of breast cancer survivors that are potentially modifiable might help clinical practice (including occupational health care) with developing interventions aiming at enhancing return to work. To illustrate, it is suggested that breast cancer survivors who have a job with high psychological demands have a higher risk of loss of employment (Wang 2018). A work support intervention addressing job demands could encompass (temporarily) work adjustments to alleviate job demands and thereby enhance employment. To give another example, a study found that breast cancer survivors with low work ability need a longer time to resume their work compared to those with moderate or high work ability (De Boer 2008). An intervention addressing work ability could encompass individual work-related support as part of psycho-oncology care by an oncological occupational physician (Zaman 2017). The identification of prognostic factors for the return to work of breast cancer survivors that are non-

modifiable could help clinical practice (including occupational health care) to identify breast cancer survivors at high risk of loss of employment on which interventions could be specifically targeted. This is important for two reasons. First, large variation in time to return to work of breast cancer survivors (e.g. Roelen 2011; Tamminga 2013) indicates that some breast cancer survivors need more support than others. Second, previous work on supportive interventions for cancer survivors has shown inconclusive results (De Boer 2015), partly due to the fact that breast cancer survivors who would hypothetically benefit most from an intervention did not participate (Greidanus 2021; Tamminga 2013).

To the best of our knowledge, five systematic reviews have been published on factors associated with returning to work after breast cancer (Islam 2014; Spelten 2002; Sun 2017; Wang 2018; Zomkowski 2018). Our review is of added value to these reviews, because the previous systematic reviews did not quantify the associations; they included studies with lower levels of evidence, such as cross-sectional studies; pooled associations between prognostic factors and return to work occurred in largely varying time frames (from several months after diagnosis to numerous years after diagnosis); they included adjusted associations only; and/or did not always specify when the prognostic factors were assessed, while the time of assessment of the prognostic factor, as well as when the outcome is measured, is of importance (Riley 2019). Therefore, we limited both the timing of the assessment of the prognostic factor and, based on that, the timing of the outcome, and included high-quality study designs only. Additionally, since our preliminary search showed six studies that fulfilled our inclusion criteria, we expected sufficient literature to justify this review (Appendix 2).

OBJECTIVES

The objective of this Cochrane review was to systematically review and synthesize the literature on the association between sociodemographic, breast cancer-related, other health-related, personal, and work-related factors and return to work in the 24 months following a breast cancer diagnosis among those survivors having paid work at diagnosis.

- Population - Patients with breast cancer who had paid work at diagnosis;
- Index prognostic factor - Sociodemographic, breast cancer-related, other health-related, personal, and work-related factors;
- Comparator prognostic factor - Not applicable;
- Outcome(s) - Return to work;
- Timing - Around breast cancer diagnosis and at the end of adjuvant treatment;
- Setting - Various (e.g. health care, occupational health care).

METHODS

We conducted the review according to the published protocol (Tamminga 2022) and reported any deviations from it in the 'Differences between protocol and review' section of the systematic review.

We reported this review according to PRISMA guidelines (Moher 2009).

Criteria for considering studies for this review

We included articles if the following criteria were met:

1. The type of study was a prospective cohort study, a retrospective cohort study with time lag between assessment of prognostic factor and outcome, or a prognosis study based on a randomized controlled trial (see Figure 1).
2. The study sample included people diagnosed with breast cancer who were in paid work at the time of breast cancer diagnosis.
3. At least one factor as specified in our variable framework was studied (Figure 1; Appendix 1).
4. Return to work (yes/no) or time to return to work was assessed as somewhere between one and 24 months of follow-up.
5. The article type was an original article (commentaries, reviews, and editorials were excluded).
6. The full text of the article was available.
7. The article was published in a peer-reviewed journal.

When study samples overlapped by more than 50%, the study was only included when additional factors were studied. The studies were administered under one study ID.

Types of studies

We included prospective cohort studies, retrospective cohort studies applying a time lag between assessment of the prognostic factor and assessment of the outcome (i.e. historical prospective cohort studies, such as register-based studies), and prognosis studies based on secondary analyses of data derived from randomized controlled trials. With regard to this last study type, in the case of an intervention effect on return to work or any other outcome, secondary data analyses should be applied only to the control group data. In the case of no intervention effect on these outcomes, the analyses could also be applied to the intervention group data.

Targeted population

The targeted population concerned people diagnosed with breast cancer having paid work at the time of their diagnosis. This included patients were diagnosed with metastasized breast cancer or breast cancer in situ. The rationale was that patients diagnosed with breast cancer in situ also receive treatment (Van der Borden 2019) and that the treatment, and possible side effects of this treatment, is considered to impact return to work in similar ways for both stage 0 and stage 1. Also, this included both males and females; however, less than 1 percent was male (Netherlands Cancer Registery 2021).

Studies including breast cancer patients not having paid work at the time of breast cancer diagnosis or at the time of assessment, which is somewhere between one and 24 months of follow-up, were only included when: 1) the association between the prognostic factor(s) and the outcome for the specific relevant participants could be extracted from the article, or 2) the analyses were adjusted for unemployment at baseline, or 3) the percentage of those not having paid work at diagnosis did not exceed 5%. The rationale for this was that an individual study might have adopted broader inclusion criteria for the target population than we aimed to include. If it appeared that the actual percentage of those not having paid work at diagnosis was 5% or less, we think that the effect on the primary outcome would be negligible, and we included such studies. Along

the same line, if the analysis was adjusted for unemployment at baseline, the effect on the primary outcome would be negligible and we would thus include that study.

Similarly, studies including various types of cancer were only included when the association between the prognostic factor(s) and the outcome could be extracted from the study for the group of breast cancer survivors or when the percentage of those not being diagnosed with breast cancer was 15% or less.

Types of prognostic factors

Prognostic factors in the following domains were considered: sociodemographic, breast cancer-related, other health-related, personal, and work-related factors. Please see Figure 1, Appendix 1 for the variable framework and an overview of prognostic factors that were considered in this review, with a description. The main categories within the variable framework are roughly based on the International Classification of Functioning of the World Health Organization (World Health Organization 2001). According to this classification, personal factors include factors that influence how disability is experienced by the individual, such as educational level, coping style, past and current experiences and overall behavior pattern (World Health Organization 2002). For that reason, all factors related to 'health' (e.g. social health) were included in 'other health-related factors', whereas factors related to coping style and behavior were included in 'personal factors'. We decided, however, to include a separate domain of factors related to sociodemographic status because we deemed that this was important, given the scope of our review.

Prognostic factors which have not been prespecified in the variable framework, but have been studied in at least two included studies, have been considered in this review. This consideration has been based on theoretical grounding by the author team. In such cases, an amendment to the variable framework will be reported in the 'Differences between protocol and review' section of the systematic review.

Types of outcomes to be predicted

The outcome that was studied is return to work (yes/no) or time to return to work at one to 24 months of follow-up. Return to work was defined as returning to paid work for any number of hours in the cancer survivor's own or substitute work. In the case of multiple outcomes (e.g. partial and full return to work), only partial return to work has been extracted. Time to return to work was defined as the number of days from breast cancer diagnosis/baseline/first day of sick leave to return to paid work for any number of hours in the cancer survivor's own or substitute work. The outcome could either be measured by means of self-report, register(s) or a combination of both. In the case of multiple follow-up measurements, only the follow-up closest to 12 months was extracted.

Search methods for identification of studies

The search strategy included electronic searches and handsearching reference lists of relevant reviews and included studies, and Google Scholar, to retrieve as many relevant publications as possible.

Electronic searches

The following electronic databases were searched from database inception to 16 July 2021, and the search was updated on 20 January 2023: MEDLINE via Ovid (1946 to 20 January 2023); Embase.com (1947 to 20 January 2023); CINAHL EBSCOhost with Full Text (1961 to 20 January 2023); PsycINFO EBSCOhost (1967 to 20 January 2023); Web of Science Core Collection Clarivate Analytics (1997 to 20 January 2023); the Cochrane Central Register of Controlled Trials (CENTRAL; until 2023, Issue 1). The following search terms, including synonyms, closely related words, and keywords have been used as index terms or free-text words: breast cancer and return to work. The searches did not contain a methodological search filter and no date or language restrictions were applied. We chose not to include terms related to prognostic study methods because prognostic studies are not always correctly labeled in electronic databases and, as a consequence, relevant studies may be missed when including such terms. Please see Appendix 3 for the full search strategy for all databases.

Searching other resources

Google Scholar, conference proceedings, and reference lists of both included full-text studies and relevant systematic reviews have been searched for additional relevant literature.

Data collection

Authors of potentially or actually included studies were not involved in screening, inclusion, data extraction, RoB assessment and GRADE assessment of their own studies.

Selection of studies

The inclusion and exclusion criteria have been applied by two review authors independently on title and abstract using Ouzzani 2016 (ST and AdW divided all records; ST reviewed the same title and abstracts as PC, AdB and EF, and AdW the same title and abstracts as MG and SD). Disagreements were resolved by the same two authors. In case disagreement remained after a discussion between these two authors, a third author was consulted (either AdW or ST). Thereafter, the inclusion and exclusion criteria were applied by two authors (as long as they were not also being authors of the study being considered) independently on full-text articles (same set of authors as with screening of title and abstract). Disagreements were resolved by the same two authors. In case disagreement remained after a discussion, again a third author was consulted (ST or AdW).

Data extraction and management

We extracted the following data that were based on the 'CHecklist for critical Appraisal and data extraction of systematic Reviews of prediction Modeling Studies' (CHARMS) – prognostic factors (PF) (Riley 2019).

1. Data source (e.g. study design);
2. Participants (e.g. inclusion and exclusion criteria, patient characteristics);
3. Outcomes to be predicted (i.e. return to work (yes/no) or time to return to work) and how return to work was defined and assessed (self-report versus objectively measured versus register-based);
4. Prognostic factors (e.g. number and type of prognostic factors, definition and method for assessment, timing, handling of prognostic factor in the analysis);
5. Sample size (e.g. whether a sample size calculation was conducted);

6. Missing data (e.g. number of participants with any missing values);
7. Analysis (e.g. modeling method, sample size calculation for time to return to work (e.g. the number of censored observations, any evidence of non-proportional hazards));
8. Results (e.g. unadjusted and adjusted measures of association);
9. Interpretation and discussion (interpretation of current results).

Two authors independently extracted data using a data extraction form (implemented in Google Forms; please see appendix 6a of the protocol, Tamminga 2022) (ST reviewed all included studies, and AdB, PC and AdW divided all included studies between them). In the case that one reviewer was the author of an included study, someone else performed the data extraction. Disagreements were resolved by the set of two authors. In the case that disagreement remained after a discussion, a third author was consulted (AdB). The data extraction form was pilot tested.

Assessment of risk of bias in included studies

Risk of bias assessment was conducted using the Quality in Prognosis Studies (QUIPS) tool (Hayden 2006; Hayden 2013). This was implemented in Google Forms (refer to Appendix 6b of the protocol Tamminga 2022). Our tool was not pilot tested but, given that it was based on a previous tool, we considered this unnecessary. Risk of bias was assessed by ST and AdW. Disagreements were resolved by the same two authors; in case there was no agreement, a third author was consulted (AdB). We assessed each study's risk of bias, considering six domains: study participation, study attrition, prognostic factor measurement, outcome measurement, study confounding, statistical analysis and reporting. We operationalized each domain in the following way:

Study participation:

- High risk of bias when the participation of eligible individuals was ≤ 70% or when non-participation was associated with key characteristics (i.e. cancer stage, income, type of surgery);
- Moderate risk of bias when the participation of eligible individuals was unknown;
- Low risk of bias when the participation of eligible individuals was above 70%, even if it was unknown to what extent the sample represented the population of interest in key characteristics (i.e. cancer stage, income, type of surgery).

Study attrition:

- High risk of bias when the response rate was ≤ 75% or when the loss to follow-up was associated with key characteristics (i.e. cancer stage, income, type of surgery);
- Moderate risk of bias when the response rate was unknown;
- Low risk of bias when the response rate was above 75%, even if it was unknown to what extent the loss to follow-up was associated with key characteristics (i.e. cancer stage, income, type of surgery).

Prognostic factor measurement:

- High risk of bias when prognostic factors were not described adequately and the proportion of the study sample that completed data for prognostic factors was ≤ 75%;
- Moderate risk of bias when the proportion of the study sample that completed data for prognostic factors was unknown;
- Low risk of bias when the proportion of the study sample that completed data for prognostic factors was above 75% even if the description of the prognostic factors was brief.

Outcome measurement:

- High risk of bias when the outcome measurement was not defined adequately (e.g. not detailed whether it concerned partial or full return to work);
- Moderate risk of bias when not applicable;
- Low risk of bias when the outcome measurement was defined adequately.

Study confounding:

- High risk of bias when adjusted analyses had not accounted for any of the key characteristics (i.e. cancer stage, income, type of surgery);
- Moderate risk of bias when it was unclear whether adjusted analyses accounted for any of the key characteristics;
- Low risk of bias when adjusted analyses accounted for the key characteristics (i.e. cancer stage, income, type of surgery).

Statistical analysis and reporting:

- High risk of bias when: 1) there was selective reporting of results (e.g. only statistical significant associations), 2) when statistical approach did not seem appropriate for the design of the study, or 3) when the strategy for model building was not sufficiently presented to assess the adequacy of the analysis;
- Moderate risk of bias when all three of the above were unclear;
- Low risk of bias when: 1) there was no selective reporting of results (e.g. only statistical significant associations), 2) when a statistical approach did seem appropriate for the design of the study, and 3) when the strategy for model building was sufficiently presented to assess the adequacy of the analysis.

We have extracted relevant information from the study, as well as administered methodological considerations relevant to each domain. Based on this information, we have judged each domain as having either high, low or moderate risk of bias.

Extracted measures of association

For the primary outcome, return to work (yes/no), we extracted the numbers and percentage of those who returned to work and those who did not return to work. For the primary outcome, time to return to work, we extracted the mean or median and standard deviation or interquartile range or range. Measures of associations that we extracted were as follows.

1. Univariate odds ratio (OR) or risk ratio (RR) for the association between the prognostic factor and the outcome return to work (yes/no), with a 95% confidence interval and/or standard error, if applicable. If available, we extracted the actual number and percentage of patients who reported the various prognostic factors and those who returned/did not return to work.
2. Univariate hazard ratio (HR) for the association between the prognostic factor and the outcome, time to return to work, with a 95% confidence interval/standard error, if applicable.

3. Univariate linear regression coefficient for the association between the prognostic factor and the outcome, time to return to work, operationalized as a continuous outcome, with a 95% confidence interval/standard error, if applicable.
4. Adjusted odds ratio (OR or RR) for the association between the prognostic factor and the outcome, return to work (yes/no), with a 95% confidence interval and/or standard error. In the case of multiple adjusted ORs/RRs, we extracted the most adjusted ORs/RRs. Cancer stage, mastectomy versus breast-conserving surgery, and income should optimally be adjusted; and also cancer stage minimally (Wang 2018).
5. Adjusted hazard ratio (HR) for the association between the prognostic factor and the outcome, time to return to work, with a 95% confidence interval and/or standard error. In the case of multiple adjusted HRs, we extracted all. Cancer stage, mastectomy versus breast-conserving surgery and income should optimally be adjusted; and also cancer stage minimally (Wang 2018).

In logistic regression analyses with return to work as an outcome, patients who die may or may not be left out of the analysis. In survival analysis with time to return to work as an outcome, patients who die should be censored. Nonetheless, we have not made any selection on how included studies dealt with patients who died during follow-up in the analysis, but we have extracted these data from the studies.

Generally, the preferred measure for assessing time-to-event outcomes, such as time to return to work, is HR. However, where studies only reported continuous outcome measures, such as the mean number of days to return to work, we would extract and use these, with acknowledgment of the limitations of such an approach.

Dealing with missing data

Missing measures of association were requested by contacting the corresponding author of the original study; for instance, when 'no association' was reported without providing the measure of association. In case we did not receive an author response, and the raw data were available, we calculated the measure of association based on the information provided in the article.

Assessment of heterogeneity

The following sources of heterogeneity between studies were investigated by comparing included studies on the following aspects:

1. Study design (e.g. heterogeneity in how time-dependent factors such as adjuvant breast cancer treatment were taken into account);
2. Definition of study sample (e.g. heterogeneity in breast cancer stage or age of the study sample, or both);
3. Definition of prognostic factors (e.g. application of different age ranges/categories, educational level, job demands). Please see Figure 1 for an overview and description of each prespecified prognostic factor that has been considered in this review;
4. How a prognostic factor was assessed (i.e. self-report versus objectively measured versus register-based);
5. Definition and operationalization of the primary outcome, i.e. return to work or time to return to work;
6. Risk of bias in the included studies, as assessed with the QUIPS tool (Hayden 2013; Riley 2019).

In addition, heterogeneity was assessed by visual inspecting of forest plots. When we identified heterogeneity, we tried to understand the reasons for the heterogeneity by exploring the options outlined in the *Cochrane Handbook* (Higgins 2022) and we investigated the presence of outlying studies.

Assessment of reporting deficiencies

For the assessment of publication bias, we have handsearched conference proceedings identified with our electronic search, to see whether a study was only published as conference proceedings and not as full text. For each meta-analysis with more than 10 studies, we visually examined asymmetry in funnel plots.

Data synthesis

The measures of association have been entered into the data tables in RevMan Web (RevMan Web 2025). For the primary outcome, return to work, ORs or RRs were entered. For the primary outcome, time to return to work, HRs were entered. We pooled effect sizes as natural log ORs and SEs, and converted these pooled estimates to ORs and 95% CIs for ease of interpretation. We entered these data into RevMan Web using the generic inverse variance method. We ensured that, for the outcome, return to work, 0/1 means the same (e.g. 1 means not returned to work and 0 means return to work). In case data could not be pooled, information about why each prognostic factor could not be pooled was provided.

Data synthesis and meta-analysis approaches

To address our objective, a meta-analysis has been conducted per prognostic factor, should at least four included studies report on the association between that specific factor and the outcome. Please see Appendix 1 for a description of each factor that has been considered in this review.

The meta-analysis has been reported separately for type of association (i.e. unadjusted and (similarly) adjusted), for timing of assessment of the prognostic factor (i.e. around breast cancer diagnosis, and around end of adjuvant breast cancer treatment) and for type of risk estimate (i.e. RR, OR, or HR). The (multivariate/univariate) association (i.e. RR, OR, or HR) between prognostic factor and outcome of individual studies was pooled using RevMan Web (RevMan Web 2025) and presented in forest plots separately by type of association and by timing of assessment.

Subgroup analysis and investigation of heterogeneity

To study heterogeneity, subgroup analysis would have been undertaken when at least 10 studies could be included in the subgroup analysis, which was the case for none of the prognostic factors.

To study heterogeneity regarding the risk of bias, a meta-regression stratified by type of association and timing of assessment would have been conducted for the prognostic factor cancer stage only, in the case where at least 10 studies could be included, but this was not the case.

To study whether the type of social security system influenced the association between a prognostic factor and the outcome, a meta-regression would have been conducted for the prognostic factor

cancer stage where at least 10 studies could be included, but this was not the case for any of the proposed analyses.

Sensitivity analysis

Should at least 10 studies be included, it was planned that sensitivity analysis for the prognostic factor, cancer stage only, would be conducted for association with return to work (yes/no) versus time to return to work. However, we were unable to conduct sensitivity analyses.

Conclusions and summary of findings

ST and AdW applied GRADE, specific for prognostic factor studies, to create summary of findings tables in which the certainty of evidence was assessed (Foroutan 2020). The certainty of the evidence was downgraded by one to three levels depending on the seriousness of the violations in each domain. We considered the risk of bias tables for each study included to assess the risk of bias for each prognostic factor. We downgraded the certainty of the evidence if there were one or more limitations in the following domains: risk of bias, consistency, directness of the evidence, precision of the pooled risk estimate and the possibility of publication bias. All statements on the association of a certain factor with the return to work in breast cancer patients, such as in the summary of finding tables and the conclusion, were worded in line with the recommendations on communicating findings when using the GRADE approach.

RESULTS

Results of the search

The systematic searches yielded 14,799 records with two identified via other sources. Eight thousand, four hundred and eighty-six records were left after removing duplicates. We assessed 280 full-text articles for eligibility and excluded 249, including one article (Camejo-Martinez 2022), which was classified as 'Studies awaiting classification'. This left 31 articles based on 19 cohorts that fulfilled our inclusion criteria. Seven of the 19 studies could be included in one or more meta-analyses (Figure 2).

Figure 2.

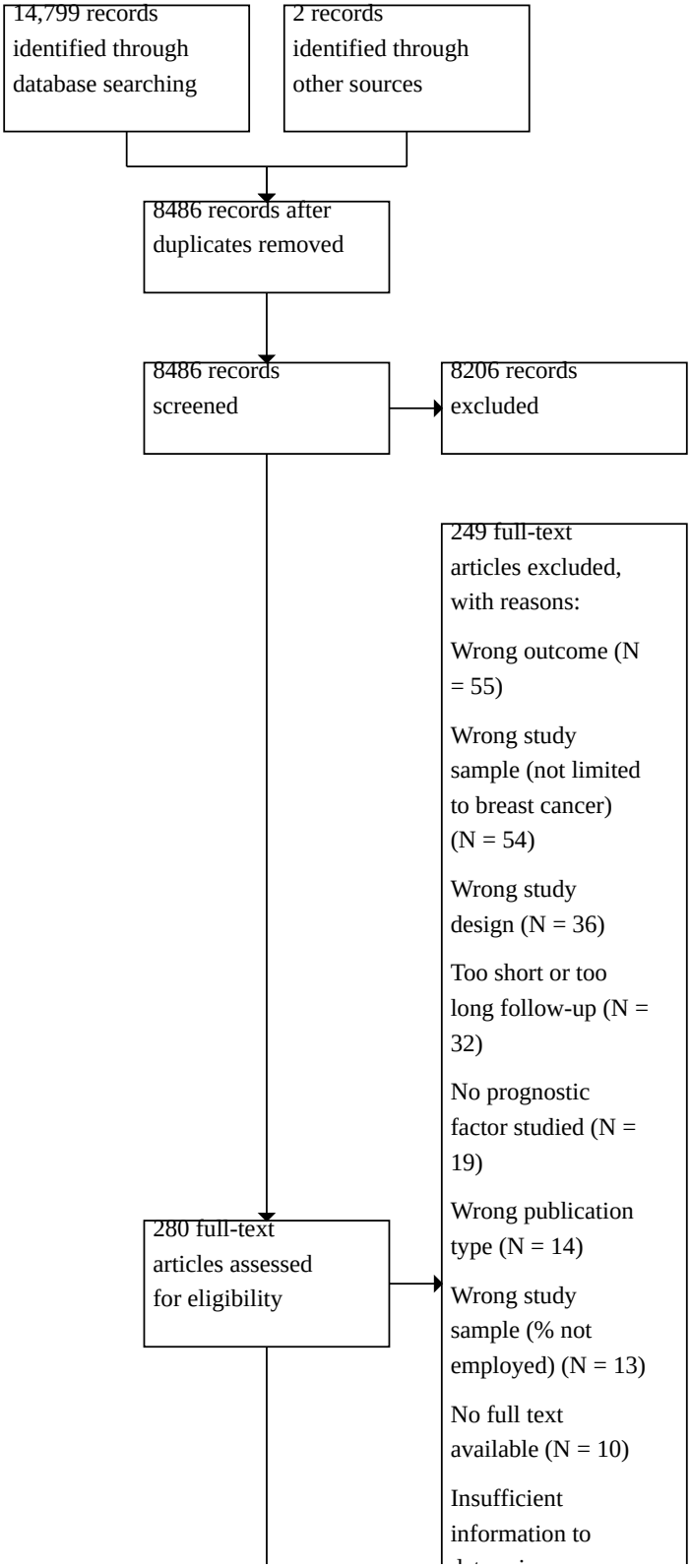
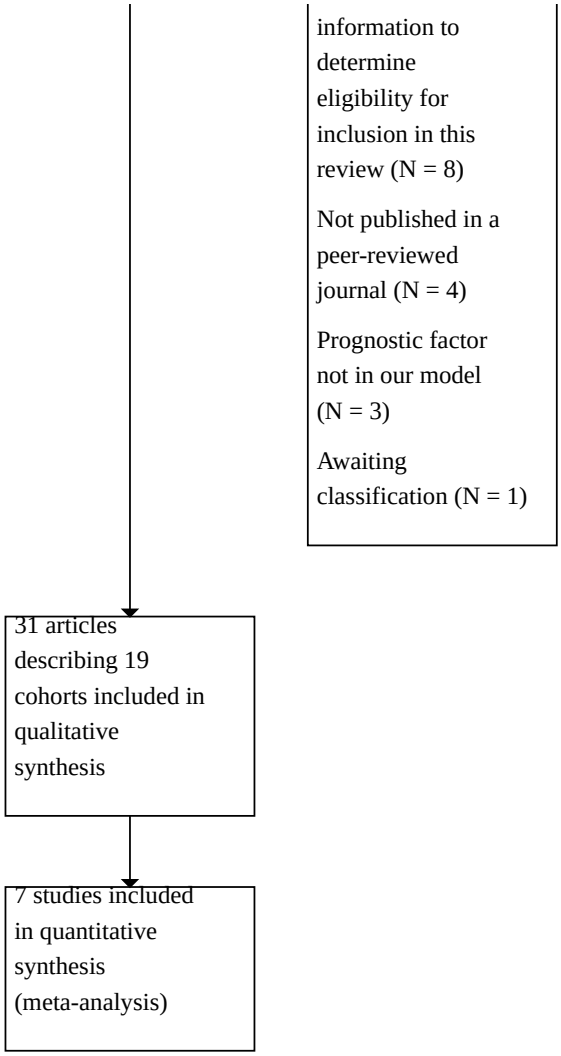


Figure 2. (Continued)



We sought additional information regarding study details and outcome data from the authors of 18 articles (as various articles have been placed under one study ID, this could mean that the corresponding authors of the primary reference for the study might not have been contacted). Eight of the authors could not be reached as their email addresses were not valid any longer or the authors did not respond (Arfi 2018; Dadhania 2018; Luis 2018; Partridge 2016; Strada 2006; Strada 2008; Tevaarwerk 2010; Throckmorton 2015). Ten of the authors kindly provided details which had not been published in their articles, on which we decided jointly that the article should be excluded (i.e. not meeting inclusion criteria, duplicate of an included or excluded study) (Balak 2008; Bouknight 2006; Blinder 2012; Di Meglio 2020; Heuser 2018; Li 2021; Plym 2020; Roelen 2009; Rosenberg 2019; Stroppa 2011). None of the authors provided study details, a full-text article and/or outcome data that had not been published in their articles, which enabled us to include the study.

Included studies

Study designs

All 19 included studies were prospective cohort studies (Characteristics of included studies). Two of the included studies were register-based studies (Jensen 2019; Roelen 2011).

Country and time period

Eleven studies were carried out in Europe (Cooper 2013; Di Meglio 2020; Hedayati 2013; Jensen 2019; Johnsson 2007; Johnsson 2009; Lilliehorn 2013; Noeres 2013; Porro 2019; Roelen 2011; Wolvers 2018), seven in North America (Blinder 2012; Bouknight 2006; Bradley 2007; Bradley 2013; Bradley 2014; Cooper 2013; Rosenberg 2019), and one in South America (Landeiro 2018). Most studies were conducted in the '2000s' and '2010s', with the oldest study conducted in the period 1990 to 1994 (Johnsson 2007) and the most recent study conducted from 2012 to 2017 (Di Meglio 2020).

Participants and setting

Large variation in source population and eligibility criteria was found. This has led to large variation in the characteristics of the study sample, and to the fact that, in some studies, a characteristic is considered a characteristic of the source population, while in other studies, it is considered a prognostic factor. For instance, the source population of the study by Wolvers 2018 consisted of breast cancer survivors who were treated with chemotherapy, while chemotherapy is a prognostic factor in many other studies. Altogether, 14 studies were carried out from a (psycho-)oncological care perspective (Bouknight 2006; Cooper 2013; Di Meglio 2020; Hedayati 2013; Jensen 2019; Johnsson 2007; Johnsson 2009; Landeiro 2018; Le Gall 2022; Lilliehorn 2013; Noeres 2013; Porro 2019; Rosenberg 2019; Wolvers 2018), while four originated from an insurance perspective (Blinder 2012; Bradley 2007; Bradley 2013; Bradley 2014), and one from an occupational health service perspective (Roelen 2011).

Sample sizes

The total number of participants included in the statistical analysis was 23,917 and ranged from 44 (Hedayati 2013) to 16,886 (Jensen 2019) per study.

Type of prognostic factors

From our prespecified variable framework, altogether 35 factors were studied from one or more included studies. None of these studies included prognostic factors that were measured at the end of adjuvant treatment (see Table 1 for an overview per factor). Sociodemographic and breast cancer-related factors were most often studied, while personal and work-related factors were less often studied, most likely due to the clinical perspective that was chosen in most studies and available data from register-based studies.

Various factors, such as a combination of treatment, lifestyle behavior, and symptoms such as pain were assessed in the included studies, but were not part of our prespecified variable framework or were measured at an inappropriate measurement moment (i.e. cross-sectional) (see the Characteristics of included studies for an overview per included study). None of the factors (assessed in the included studies, but not part of our prespecified variable framework) were later on added to the variable framework as most of these factors were not studied in more than two studies or were not considered relevant, based on theoretical grounding by the author team.

Outcomes

We found variation in how return to work was defined and how it was assessed. Some definitions were brief, such as 'are you currently working?' while others included in their definition the number of hours worked, earnings and type of work. In 11 studies, return to work was assessed by means of a questionnaire (Blinder 2012; Bouknight 2006; Di Meglio 2020; Hedayati 2013; Johnsson 2007; Johnsson 2009; Landeiro 2018; Le Gall 2022; Porro 2019; Rosenberg 2019; Wolvers 2018), in another six by an interview (Bradley 2007; Bradley 2013; Bradley 2014; Cooper 2013; Lilliehorn 2013; Noeres 2013), and in two by using register data (Jensen 2019; Roelen 2011).

Follow-up

Follow-up duration ranged from three to 24 months with 10 studies having two or more follow-up measurement points.

Excluded studies

The reasons for excluding studies from this review were the following (see Characteristics of excluded studies):

Wrong outcome (N = 55)

Wrong study sample (not limited to breast cancer) (N = 54)

Wrong study design (N = 36)

Too short or too long follow-up (N = 32)

No prognostic factor studied (N = 19)

Wrong publication type (N = 14)

Wrong study sample (% not employed at breast cancer diagnosis) (N = 13)

No full text available (N = 10)

Insufficient information to determine eligibility for inclusion in this review (N = 8)

Not published in a peer-reviewed journal (N = 4)

Prognostic factor not in our model (N = 3)

Risk of bias in included studies

In general, most studies were of moderate methodological quality, with at least one or two items that we judged to be at a high risk of bias (Figure 3). We judged only two studies to have no domains with a high risk of bias (Bradley 2013; Jensen 2019).

Figure 3. Unclear = not applicable.

			Quality in Prognosis Studies (QUIPS)			
Study	Study participation	Study attrition	Prognostic factor measurement	Outcome measurement	Study confounding	Statistical analysis and reporting
Blinder 2012	Moderate	High	Low	Low	Low	High
Bouknight 2006	Low	Low	Low	Low	Low	Low
Bradley 2007	Low	Low	Low	Low	High	Low
Bradley 2013	Low	Low	Low	Low	Low	Low
Bradley 2014	Moderate	Low	Low	Low	Low	High
Cooper 2013	High	Low	Low	Low	High	High
Di Meglio 2020	Moderate	Low	Low	High	Low	Low
Hedayati 2013	Moderate	Low	Low	High	High	High
Jensen 2019	Low	Low	Low	Low	Low	Low
Johnsson 2007	Moderate	Low	Moderate	Low	High	High
Johnsson 2009	Low	Low	Low	Low	High	High
Landeiro 2018	High	Low	Low	Low	High	High
Le Gall 2022	Moderate	Low	Low	High	High	Unclear
Lilliehorn 2013	Low	Low	Low	High	High	Low
Noeres 2013	Moderate	Low	Low	High	High	High
Porro 2019	High	Low	Low	Low	High	High
Roelen 2011	Moderate	Low	Low	Low	High	High
Rosenberg 2019	High	Low	Low	Low	High	High
Wolvers 2018	Moderate	Moderate	Low	Low	Low	Low

Figure 3: 'Risk of bias' assessment according to QUIPS (Quality in Prognostic Studies)

Study participation

Most studies did not describe how many of the eligible participants actually participated or whether the participation rate was below our pre-defined cut-off value of ≤ 70%. Additionally, in most of these studies, the characteristics of the persons not participating were not described. In those studies, it was unknown to what extent the sample represented the population of interest in key characteristics (i.e. cancer stage, income, type of surgery). Therefore, four (Cooper 2013; Landeiro 2018; Porro 2019; Rosenberg 2019) of the 19 studies were considered to have a high risk of bias, whereas in nine studies (Blinder 2012; Bradley 2014; Di Meglio 2020; Hedayati 2013; Johnsson 2007; Le Gall 2022; Noeres 2013; Roelen 2011; Wolvers 2018), risk of bias was moderate.

Study attrition

Two of the 19 studies (Blinder 2012; Wolvers 2018) were either rated as being at high risk of bias or moderate risk of bias, as the proportion of participants who completed the study and those who did not was below our pre-defined cut-off point of ≤ 75% or the response rate was unclear. It is important to note that the reason that most studies that were rated as having low risk of bias was because the attrition rate was below our cut-off point. However, most studies did not describe whether there were important differences between key characteristics (i.e. cancer stage, income, type of surgery) between participants who completed the study and those who did not.

Prognostic factor measurement

In 18 of the 19 included studies, both the prognostic factors included and the sample size per prognostic factor were adequately described.

Outcome measurement

All studies described their outcome measurement. It is important to note that five of the included studies (Di Meglio 2020; Hedayati 2013; Le Gall 2022; Lilliehorn 2013; Noeres 2013) described their outcome rather briefly; for instance, as 'working or not' and we rated those brief descriptions as being at high risk of bias as it was unclear whether this definition included being on sick leave or not, or working for a certain number of hours.

Study confounding

Twelve studies (Bradley 2007; Cooper 2013; Hedayati 2013; Johnsson 2007; Johnsson 2009; Landeiro 2018; Le Gall 2022; Lilliehorn 2013; Noeres 2013; Porro 2019; Roelen 2011; Rosenberg 2019) did not account for one or more of the three confounders that we defined a priori as being essential (i.e. cancer stage, income, type of surgery) in their statistical analyses.

Statistical analysis and reporting

Seven studies (Blinder 2012; Bradley 2014; Cooper 2013; Johnsson 2007; Johnsson 2009; Landeiro 2018; Noeres 2013) were rated having high risk of bias due to selective reporting. In some of these studies, only statistically significant associations were reported, whereas in others, only the multivariate model was reported. Additionally, in eight studies (Blinder 2012;Bradley 2014; Johnsson 2009; Landeiro 2018; Noeres 2013; Porro 2019; Roelen 2011; Rosenberg 2019), the strategy for model building was insufficiently presented to assess the adequacy of the analysis.

Findings

In total, 35 different variables from our pre-defined variable framework were assessed in at least one study as a prognostic factor (Table 1). Six of the seven pre-defined factors in the

sociodemographic domain were studied in at least one included study, as well as 11 of the 13 factors in the breast cancer-related domain, 12 of the 12 factors in the other health-related domain, two of the three factors in the personal domain, and four of the 13 factors of the work-related domain (Table 1).

See: Summary of findings 1; Summary of findings 2; Summary of findings 3; Summary of findings 4; and Summary of findings 5.
On average, 70.5% of the participants returned to work as measured at the longest follow-up. The return to work rate ranged from 56% to 88%.

See Appendix 4 for an overview of factors considered in the adjusted analysis.

1.1 Association of age with return to work

Pooled adjusted results found higher age to be associated with work outcomes at the time point closest to 12 months: adjusted pooled OR 0.96 (per 1-year increase), 95% CI 0.94 to 0.98; 4 studies, 1333 participants; no heterogeneity (I^2 = 0%) (Analysis 1.1).

2.1 Association of level of education with return to work

Pooled unadjusted results found a low level of education to be associated with work outcomes at the time point closest to 12 months: OR 0.40 95% CI 0.29 to 0.55; 4 studies, 1680 participants; low heterogeneity (I^2 = 0%) (Analysis 2.1). In addition, pooled adjusted results found no association between a lower level of education and adverse work outcomes at the time point closest to 12 months: OR 0.65, 95% CI 0.42 to 1.02; 4 studies, 1146 participants; low heterogeneity (I^2 = 0%) (Analysis 2.1).

3.1 Association of partner status with return to work

Unadjusted results found no association with returning to work with partner status: OR 0.91, 95% CI 0.67 to 1.23; 4 studies, 1680 participants; no heterogeneity (I^2 = 0%) (Analysis 3.1).

4.1 Association of chemotherapy with return to work

Unadjusted and adjusted results found an association with receiving chemotherapy with work outcomes at the time point closest to 12 months: OR 0.48 95% CI 0.31 to 0.73; 5 studies, 1766 participants; low heterogeneity (I^2 = 32%) (Analysis 4.1).

5.1 Association of radiotherapy with return to work

Unadjusted results found no association with receiving radiotherapy with work outcomes at the time point closest to 12 months: OR 1.03, 95% CI 0.64 to 1.67; 4 studies, 1666 participants; moderate heterogeneity (I^2 = 49%) (Analysis 5.1).

Subgroup analysis and investigation of heterogeneity

We did not find a sufficient number of studies to enable us to conduct the planned subgroup analysis and assessment of heterogeneity. Statistical heterogeneity assessed with I^2 appeared to be low. However, we found considerable heterogeneity in terms of the definition of the study sample, definition of prognostic factors, definition and operationalization of the primary outcome. Due to the low number of included studies that measured the outome of time to return to work, it was not possible to pool data on time to return to work.

Assessment of reporting deficiencies

We did not find a sufficient number of studies to enable us to conduct the planned assessment of reporting deficiencies.

Sensitivity analyses

However, as we did not find a sufficient number of studies, we were unable to conduct any sensitivity analyses.

GRADE assessment - associations with return to work

2.1 Age

The certainty of the evidence for Analysis 1.1 was downgraded by two levels for risk of bias (bias mainly arising from selected or unclear study participation and arising from incorrect or unclear statistical analyses) in combination with the inability to investigate heterogeneity and investigate publication bias due to the low number of studies included in this analysis.

2.2 Level of education

The certainty of the evidence for Analysis 2.1 was downgraded by two levels for risk of bias (bias mainly arising from selected or unclear study participation and arising from incorrect or unclear statistical analyses) in combination with the inability to investigate heterogeneity and investigate publication bias due to the low number of studies included in this analysis.

2.3 Partner status

The certainty of the evidence for Analysis 3.1 was downgraded by two levels for risk of bias (bias mainly arising from selected or unclear study participation and arising from incorrect or unclear statistical analyses) in combination with the inability to investigate heterogeneity and investigate publication bias due to the low number of studies included in this analysis.

2.4 Chemotherapy

The certainty of the evidence for Analysis 4.1 was downgraded by two levels for risk of bias (bias mainly arising from selected or unclear study participation and arising from incorrect or unclear statistical analyses) in combination with the inability to investigate heterogeneity and investigate publication bias due to the low number of studies included in this analysis.

2.5 Radiotherapy

The certainty of the evidence for Analysis 5.1 was downgraded by two levels for risk of bias (bias mainly arising from selected or unclear study participation and arising from incorrect or unclear statistical analyses) in combination with the inability to investigate heterogeneity and investigate publication bias due to the low number of studies included in this analysis.

DISCUSSION

Summary of main findings

We sought to systematically review and synthesize the literature on the association between sociodemographic, breast cancer-related, other health-related, personal, and work-related factors and return to work in the first 24 months after a breast cancer diagnosis among breast cancer survivors having paid work at diagnosis. We found that higher age and receiving chemotherapy may be associated

with return to work in breast cancer survivors (low-quality evidence and, for chemotherapy, only pooled unadjusted results were available). Results regarding educational level are inconclusive. We furthermore found that there was no significantly adjusted association with having a partner and receiving radiotherapy (low-quality evidence) and returning to work. For other factors within the sociodemographic and breast-cancer-related domains, there were either fewer than four comparable measures of association or no estimates at all available for a meta-analysis. This was also the case for other health-related, personal and work-related factors.

Overall completeness and applicability of evidence

We contacted the corresponding authors of 24 original studies, asked them for supplementary data (e.g. missing data and outcomes of univariate analyses), and sought clarification on specific aspects of their research (e.g. regarding their utilized statistical analyses). More than half of the authors responded and kindly provided the requested information. By filling gaps in our data extraction due to incomplete or inconclusive reporting in the original articles, the reliability, validity and completeness of our findings could be enhanced.

The included studies were predominantly conducted in European and North American countries. This Cochrane review did not include the potential variations in healthcare and legal systems and cultural factors across countries outside these continents because no or few studies in other countries were available. Healthcare and legal systems and cultural factors could potentially influence the associations between prognostic factors and the return to work of breast cancer survivors. Therefore, when generalizing the outcomes to other parts of the world, factors related to the countries' healthcare systems and treatment practices (e.g. the quality and invasiveness of cancer treatment), legal context (e.g. stakeholders' responsibilities in the sickness absence and return to work guidance), and cultural differences regarding cancer and employment should be considered.

The included studies captured cohorts from 1990 to 2017. No studies were found that studied cohorts prior to 1990. Yet, this is not necessarily a limitation, considering the evolving landscape of cancer-treatment advancements (i.e. earlier diagnosis, and better and less invasive treatment options) and the slowly diminishing stigma of cancer survivors returning to or staying at work into account (Kleban 2014). These shifting perceptions and therapeutic advancements may influence the association between the assessed breast cancer-related and work-related factors and the likelihood of breast cancer survivors returning to work.

Due to high levels of heterogeneity among the included studies, e.g. concerning the studies' population, eligibility criteria, and type of risk estimate, it was not possible to pool data on time to return to work or study publication bias. Nevertheless, there was no suspicion of publication bias.

The included studies captured predominantly sociodemographic, breast cancer, and health-related factors. Work-related and personal factors were the least studied, while cross-sectional studies on factors associated with return to work in cancer survivors (e.g. Kang 2022; Li 2023; Su 2019) and systematic reviews in other health domains (e.g. Blaeser 2023; De Wit 2018; Orange 2024) suggest that work-related and personal factors are important to consider.

Studies with a maximum follow-up of two years were included, meaning that, based on the current review, no conclusions can be drawn on employment outcomes in the longer term. Nevertheless, from previous qualitative studies, we know that cancer survivors in the initial phase of return to work mainly experience disease and treatment-related factors hampering their return to work whereas, in later stages, personal and work-related factors become more prominent (Tamminga 2012).

Quality of the evidence

The overall methodological quality of the included studies was moderate. Several notable shortcomings were identified. Firstly, the description of participants was inadequate in many studies, as they often failed to report the characteristics of individuals who did not participate or who did not complete the study. This raises concerns about the representativeness of the included breast cancer survivors. Secondly, confounders were frequently overlooked in the analysis, potentially leading to biased results. Thirdly, the statistical analyses in numerous studies were suboptimal, sometimes only reporting the results of the multivariate analysis, thus, neglecting important univariate associations from often being seen. Lastly, while all the studies provided a description of their outcome measures, it is important to acknowledge that these descriptions were often relatively concise. This limited level of detail hindered the ability to compare outcomes across different studies.

Potential biases in the review process

The challenge of extracting data from the original studies introduced a potential source of bias in the results reported in this review. The main contributing factor was the incomplete or ambiguous reporting of outcomes by the authors in their respective studies, which prompted us to request additional data from them. Whereas about half of the authors kindly responded and provided the requested information, the other half did not. Despite all parties involved putting in their best efforts to provide and process the data as accurately as possible, this makes the data extraction more prone to errors, potentially introducing low levels of bias into this review.

The selection of prognostic factors in this review was predetermined based on a pilot, considering their frequency of occurrence in a preliminary list of 21 relevant studies derived from a preliminary search in PubMed. After taking a closer look at these studies, only six potentially relevant studies remained. It is important to acknowledge that this list of prognostic factors may not encompass all theoretically relevant factors, but primarily relies on previous empirical research. This approach may introduce a bias in our review, as certain prognostic factors that were not included in the prespecified list could potentially be associated with the return to work of breast cancer survivors. However, all prognostic factors that were studied in the included studies have been reported in the Included studies section.

Agreements and disagreements with other studies or reviews

To the best of our knowledge, five other reviews have been published on factors associated with the return to work of breast cancer survivors: Islam 2014; Spelten 2002; Sun 2017; Wang 2018; Zomkowski 2018. The current Cochrane review provides additional value compared to these published systematic reviews,

e.g. because we conducted separate analyses for follow-up periods around the diagnosis of breast cancer and 12 months thereafter, and because we quantified these associations. Since the studies included in this review captured cohorts from 1990 to 2017, differences between our review and other reviews cannot be explained by the inclusion of recent studies.

Islam 2014 found that older age, lower educational level and receiving chemotherapy are barriers to returning to work, which is in line with the findings of the current Cochrane review. In addition, Islam 2014 found a range of other factors associated with return to work that we were not able to quantify with meta-analyses, because of a low number of estimates. Spelten 2002 found that sociodemographic characteristics were not related to returning to work. They furthermore concluded that a non-supportive work environment and manual labor were negatively associated with returning to work. In contrast to these reviews (Spelten 2002 and Islam 2014), we were able to quantify associations between some of these factors and returning to work, but unfortunately, not for all. The reviews of Sun 2017 and the review of Zomkowski 2018 only provided a narrative summary of the literature and Zomkowski 2018 focused on physical symptoms. Like the current review, Wang 2018 quantified associations by conducting meta-analyses, and they also summarized the quality of evidence for each of the meta-analyses. They found moderate-to-high quality of evidence that factors in the domain of sociodemographic, breast cancer-related, and work-related factors were associated with return to work. This review pooled associations at the longest follow-up time, with largely varying follow-up times, i.e. ranging from one month to 10 years, and large variation in outcomes (e.g. return to work, productivity).

Overall, our review is of added value in addition to these previous reviews, because they did not quantify associations; they included studies with lower study designs such as cross-sectional studies; there were pooled associations between prognostic factors and return to work in largely varying time frames (from several months after diagnosis to numerous years after diagnosis); they included adjusted associations only; and/or they did not always specify when the prognostic factors were assessed, while the time of assessment of the prognostic factor as well as when the outcome is measured is of importance (Riley 2019).

AUTHORS' CONCLUSIONS

Authors' conclusions

Summary of the results

We found that higher age and receiving chemotherapy may be associated with lower odds of returning to work in breast cancer survivors (low-quality evidence and, for chemotherapy, only pooled unadjusted results were available). Results regarding educational level are inconclusive. We furthermore found that there was no statistically significant adjusted association with having a partner and receiving radiotherapy (low-quality evidence; only unadjusted results available).

Implications for practice

Further research is warranted to identify those at higher risk of not returning to work so that they can receive timely support.

Implications for research

It is crucial to emphasize the need for increased harmonization across different studies, e.g. concerning study designs, study populations, eligibility criteria, risk estimation, protocols and outcome measures (Ravinskaya 2022). Such harmonization is vital for facilitating data pooling and enabling more comprehensive meta-analyses. Encouragingly, efforts have already been undertaken, as Ravinskaya and colleagues developed a core outcome set on work participation (Ravinskaya 2023). This standardized approach not only enhances comparability, but also promotes the synthesis of findings across diverse studies. Therefore, for future research, we strongly recommend incorporating the outcome measures outlined in the core outcome set (Ravinskaya 2023).

Based on our finding that numerous studies did not report on the characteristics of individuals who did not participate, we recommend that future research include this, as it might provide important insight into whether a representative sample is included in the analysis. Another possibility is to include register-based data as selection bias might be smaller.

Taking the moderate quality of included studies into consideration, it is also essential to highlight the importance of authors providing clear and comprehensive reporting of their research. This includes reporting not only multivariate analyses, but also univariate analyses, as these contribute to the pooling of data across studies. To promote improved reporting practices, we recommend the utilization of reporting guidelines or checklists. These tools provide a structured framework that guides authors in reporting the studies, e.g. the methodologies, statistical analyses, and outcomes. By adhering to these reporting guidelines, authors can enhance the transparency, replicability, and comparability of their studies, and facilitate the pooling and synthesis of data across studies.

In addition, we encourage future researchers to conduct individual participant data meta-analyses. Unlike traditional meta-analyses that rely on summarized data from published articles, which clearly come with limitations, as this review has shown once again, individual participant data meta-analyses involve the central combination and re-analysis of original data (Tierney 2022). Gathering and harmonizing individual-level data from multiple studies can be a complex, time-consuming and thus costly process (Kleban 2014). Despite these challenges, conducting individual participant data meta-analyses offers numerous potential benefits. These include enhanced data quality, more precise adjustments for confounding variables, and the opportunity to explore additional research questions, such as subgroup analyses (Tierney 2022).

Finally, we recommend that researchers include personal and work-related factors in future prospective cohort studies as these factors were understudied in the included studies, as there are indications that these factors might be important to consider (e.g. Blaeser 2023; De Wit 2018; Kang 2022; Li 2023; Orange 2024; Su 2019).

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The following people conducted the editorial process for this article:

- Sign-off Editor (final editorial decision): Mr Samuel Hinsley, Cochrane Central Editorial Service;
- Managing Editor (selected peer reviewers, provided editorial guidance to authors, edited the article): Jessica Thomas, Amsterdam UMC;
- Editorial Assistant (conducted editorial policy checks, collated peer-reviewer comments and supported editorial team): Leticia Rodrigues, Cochrane Central Editorial Service;
- Copy Editor (copy editing and production): Anne Lethaby, Cochrane Central Production Service;
- Rachel Richardson, Methods Support Unit, Cochrane (methods review), Jo Platt, Central Editorial Information Specialist (search review). Two additional peer reviewers provided clinical peer review and one additional peer reviewer provided a methods review, but chose not to be publicly acknowledged.

REFERENCES

References to studies included in this review

Blinder 2012 *{published data only}*

Blinder V, Patil S, Eberle C, Griggs J, Maly Rose C. Early predictors of not returning to work in low-income breast cancer survivors: a 5-year longitudinal study. *Breast Cancer Research and Treatment* 2013;**140**(2):407-16.

Blinder VS, Patil S, Diamant A, Thind A, Maly R. Employment status among low-income Caucasian and Latina breast cancer survivors. *Journal of Clinical Oncology* 2009;**27**(15):6612-2.

Blinder VS, Patil S, Thind A, Diamant A, Hudis CA, Basch E, et al. Return to work in low-income Latina and non-Latina white breast cancer survivors: a 3-year longitudinal study. *Cancer* 2012;**118**(6):1664-74.

Bouknight 2006 *{published data only}*

Bouknight RR, Bradley CJ, Gardiner JC, Luo Z. Return to work for breast cancer survivors. *Journal of General Internal Medicine* 2004;**19**:206-6.

Bouknight RR, Bradley CJ, Luo Z. Correlates of return to work for breast cancer survivors. *Journal of Clinical Oncology* 2006;**24**(3):345-53.

Bradley 2007 *{published data only}*

Bradley CJ, Neumark D, Luo Z, Bednarek HL. Employment-contingent health insurance, illness, and labor supply of women: evidence from married women with breast cancer. *Health Economics* 2007;**16**(7):719-37.

Bradley 2013 *{published data only}*

Bradley CJ, Neumark D, Barkowski S. Does employer-provided health insurance constrain labor supply adjustments to health shocks? New evidence on women diagnosed with breast cancer. *Journal of Health Economics* 2013;**32**(5):833-49.

Bradley 2014 *{published data only}*

Bradley CJ, Wilk A. Racial differences in quality of life and employment outcomes in insured women with breast cancer. *Journal of Cancer Survivorship: Research and Practice* 2014;**8**(1):49-59.

Cooper 2013 *{published data only}*

Cooper AF, Hankins M, Rixon L, Eaton E, Grunfeld EA. Distinct work-related, clinical and psychological factors predict return to work following treatment in four different cancer types. *Psycho-oncology* 2013;**22**(3):659-67.

Di Meglio 2020 *{published data only}*

Caumette E, Dumas A, Pinto S, El Mouhebb M, Bovagnet T, Di Meglio A, et al. Employment two years after breast cancer diagnosis: role of household characteristics, CANTO cohort. *European Journal of Public Health* 2019;**29**(4):27-8. [DOI: 10.1093/eurpub/ckz185.056]

Caumette E, Vaz-Luis I, Pinto S, Havas J, Bovagnet T, De Azua GR, et al. The challenge of return to work after breast cancer: the role of family situation, CANTO cohort. *Current Oncology* 2021;**28**(5):3866-75.

Di Meglio A, Menvielle G, Dumas A, Gbenou A, Pinto S, Rine, et al. Body weight and return to work among survivors of early-stage breast cancer. *European Society for Medical Oncology Open* 2020;**5**(6):e000908.

Di Meglio A, Menvielle G, Dumas A, Gbenou AS, Bovagnet T, Martin E, et al. Impact of overweight, obesity, and post-treatment weight changes on occupational reintegration of breast cancer (BC) survivors. *Journal of Clinical Oncology* 2019;**37**(15):11562-2. [DOI: 10.1200/JCO.2019.37.15_suppl.11562]

Di Meglio A, Menvielle G, Dumas A, Gbenou AS, Bovagnet T, Martin E, et al. Impact of overweight, obesity, and post-treatment weight changes on occupational reintegration of breast cancer (BC) survivors. *Journal of Clinical Oncology* 2019;**37**(15):11562-2.

Dumas A, Luis LMVD, Bovagnet T, Di Meglio A, El-Mouhebb M, Pinto S, et al. Return to work after breast cancer: comprehensive longitudinal analyses of its determinants. *Journal of Clinical Oncology* 2019;**37**(15):11564-4. [DOI: 10.1200/JCO.2019.37.15_suppl.11564]

Dumas A, Vaz Luis I, Bovagnet T, El Mouhebb M, Di Meglio A, Pinto S, et al. Impact of breast cancer treatment on employment: results of a multicenter prospective cohort study (CANTO). *Journal of Clinical Oncology* 2020;**38**(7):734-43.

Hedayati 2013 *{published data only}*

Hedayati E, Johnsson A, Alinaghizadeh H, Schedin A, Nyman H, Albertsson M. Cognitive, psychosocial, somatic and treatment factors predicting return to work after breast cancer treatment. *Scandinavian Journal of Caring Sciences* 2013;**27**(2):380-7.

Jensen 2019 *{published data only}*

Jensen LS, Boggild H, Overgaard C, Fonager K. Does psychiatric treatment prior to diagnosis of breast cancer affect "return to work"? *European Journal of Public Health* 2016;**26**:ckw175.140. [DOI: 10.1093/eurpub/ckw175.140]

Jensen LS, Overgaard C, Garne JP, Boggild H, Fonager K. The impact of prior psychiatric medical treatment on return to work after a diagnosis of breast cancer: a registry based study. *Scandinavian Journal of Public Health* 2019;**47**(5):519-27.

Johnsson 2007 *{published data only}*

Johnsson A, Fornander T, Olsson M, Nystedt M, Johansson H, Rutqvist LE. Factors associated with return to work after breast cancer treatment. *Acta Oncologica (Stockholm, Sweden)* 2007;**46**(1):90-6.

Johnsson 2009 *{published data only}*

Johnsson A, Fornander T, Rutqvist L, Olsson M. Work status and life changes in the first year after breast cancer diagnosis. *Work (Reading, Mass.)* 2011;**38**(4):337-46.

Johnsson A, Fornander T, Rutqvist LE, Vaez M, Alexanderson K, Olsson M. Predictors of return to work ten months after primary breast cancer surgery. *Acta Oncologica (Stockholm, Sweden)* 2009;**48**(1):93-8.

Landeiro 2018 *{published data only}*

Landeiro LCG, Gagliato DM, Fede AB, Fraile NM, Lopez RM, Da Fonseca LG, et al. Return to work after breast cancer diagnosis: an observational prospective study in Brazil. *Cancer* 2018;**124**(24):4700-10.

Landeiro LG, Fraile NMP, Fede AB, Fonseca LG, Testa L, Petry V, et al. Return to work after breast cancer diagnosis: an observational prospective study of 125 patients in South America. *Cancer Research* 2017;**77**:P4-19-06. [DOI: 10.1158/1538-7445.SABCS16-P4-19-06]

Le Gall 2022 *{published data only}*

Le Gall G, Noal S, Heutte N, Clarisse B, Leconte A, Cherifi F, et al. Impact of adjuvant trastuzumab treatment on fatigue, emotional status and quality of personal and work life of patients with localised breast cancer: results of the 'HER-ception' study. *Supportive Care in Cancer* 2022;**31**(1):38.

Lilliehorn 2013 *{published data only}*

Lilliehorn S, Hamberg K, Kero A, Salander P. Meaning of work and the returning process after breast cancer: a longitudinal study of 56 women. *Scandinavian Journal of Caring Sciences* 2013;**27**(2):267-74.

Noeres 2013 *{published data only}*

Noeres D, Park-Simon T, Grabow J, Sperlich S, Koch-Gieselmann H, Jaunzeme J, et al. Return to work after treatment for primary breast cancer over a 6-year period: results from a prospective study comparing patients with the general population. *Supportive Care in Cancer* 2013;**21**(7):1901-9.

Porro 2019 *{published data only}*

Porro B, Michel A, Zinzindohoue C, Bertrand P, Monrigal E, Trentini F, et al. Quality of life, fatigue and changes therein as predictors of return to work during breast cancer treatment. *Scandinavian Journal of Caring Sciences* 2019;**33**(2):467-77.

Roelen 2011 *{published data only}*

Roelen CA, Koopmans PC, Groothoff JW, Van der Klink JJ, Bultmann U. Sickness absence and full return to work after cancer: 2-year follow-up of register data for different cancer sites. *Psycho-oncology* 2011;**20**(9):1001-6.

Rosenberg 2019 *{published data only}*

Rosenberg SM, Vaz-Luis I, Gong J, Rajagopal PS, Ruddy KJ, Tamimi RM, et al. Employment trends in young women following a breast cancer diagnosis. *Breast Cancer Research and Treatment* 2019;**177**(1):207-14.

Wolvers 2018 *{published data only}*

Wolvers MD, Leensen MC, Groeneveld IF, Frings-Dresen MH, De Boer A. Predictors for earlier return to work of cancer patients. *Journal of Cancer Survivorship: Research and Practice* 2018;**12**(2):169-77.

References to studies excluded from this review

Adams 2004 *{published data only}*

Adams William P Jr, Lipschitz Avron H, Ansari Mona, Kenkel Jeffrey M, Rohrich Rod J. Functional donor site morbidity following latissimus dorsi muscle flap transfer. *Annals of Plastic Surgery* 2004;**53**(1):6-11.

Agrawal 2021 *{published data only}*

Agrawal N, Chaudhuri M, Sardana P, Kathe N, Aparasu RR. Association between health-related quality of life and productivity loss among working-age women with breast cancer in the united states. *Value in Health* 2021;**24**:S66-S66.

Akezaki 2021 *{published data only}*

Akezaki Y, Nakata E, Kikuuchi M, Tominaga R, Kurokawa H, Hamada M, et al. Factors associated with return to work of breast cancer patients following axillary lymph node dissection. *Work (Reading, Mass.)* 2021;**70**(1):271-7.

Alexanderson 2011 *{published data only}*

Alexanderson K. Breast cancer and return to work. *European Journal of Cancer* 2011;**47**:S61-S61.

Altundag 2019 *{published data only}*

Altundag Kadri. Lower percentage of the patients in breast reconstruction after mastectomy group who received adjuvant radiotherapy might be associated with higher work ability and productivity. *Annals of Plastic Surgery* 2019;**82**(3):359.

Amir 2007 *{published data only}*

Amir Z, Moran T, Walsh L, Iddenden R, Luker K. Return to paid work after cancer: a British experience. *Journal of Cancer Survivorship* 2007;**1**(2):129-36.

Anbari 2022 *{published data only}*

Anbari A, Sun YL, McCaffrey S, Armer J. Breast cancer-related lymphedema and rural survivors' return to work. *Oncology Nursing Forum* 2022;**48**(2):39-40.

Anderson 2022 *{published data only}*

Anderson Elizabeth A, Anbari Allison B, Sun Yuanlu, Armer Jane M. A multiple case study of latina breast cancer survivors returning to work with breast cancer-related lymphedema: adaptation, resilience, and quality of life. *Hispanic Health Care International* 2022;**20**(4):222-30.

Arfi 2018 *{published data only}*

Arfi A, Ra, Baffert S, Rine, Soilly A, Huchon C, et al. Determinants of return at work of breast cancer patients: results from the OPTISOINS01 French prospective study. *BMJ Open* 2018;**8**(5):e020276.

Arndt 2019 *{published data only}*

Arndt V, Koch-Gallenkamp L, Bertram H, Eberle A, Holleczek B, Pritzkuleit R, et al. Return to work after cancer. A multi-regional population-based study from Germany. *Acta Oncologica (Stockholm, Sweden)* 2019;**58**(5):811-8.

Artemkina 1987 *{published data only}*

Artemkina NI, Shulepova GV, Korol NL. Initial Assessment of the Ability to Work among Breast-Cancer Patients in the 1st and 2nd Stages after Radical Treatment. *Voprosy Onkologii* 1987;**33**(6):113-3.

Artiushenko 1980 *{published data only}*

Artiushenko Iu V. [Rehabilitation after radical surgery for breast cancer]. *Vosstanovlenie Trudosposobnosti Bol'nykh, Radikal'no Operirovannykh Po Povodu Raka Molochnoi Zhelezy.* 1980;**26**(11):95-8.

Artiushenko 1984 *{published data only}*

Artiushenko Iu V. [Work capacity and social security of women subjected to radical surgery for breast cancer]. *Trudosposobnost' I Sotsial'noe Obespechenie Zhenshchin, Radikal'no Operirovannykh Po Povodu Raka Molochnoi Zhelezy.* 1984;**30**(1):42-5.

Artyushenko 1984 *{published data only}*

Artyushenko YV. Working ability and social-security of females radically operated on for breast-cancer. *Voprosy Onkologii* 1984;**30**(1):42-5.

Asselain 2011 *{published data only}*

Asselain D, Belin L, Le Bihan S, Stakowski H, Asselain B, Bourillon MF. Problems faced returning to work after breast cancer. *Archives Des Maladies Professionnelles Et De L Environnement* 2011;**72**(6):585-97.

Ayala-Garcia 2021 *{published data only}*

Ayala-Garcia A, Serra L, Hernando-Rodriguez JC, Benavides FG. Returning to work after a sickness absence due to cancer: a cohort study of salaried workers in Catalonia (Spain). *Scientific Reports* 2021;**11**(1):23953. [DOI: 10.1038/s41598-021-03368-8]

Baker 2007 *{published data only}*

Baker S. Back to work. *MAMM* 2007;**9**(5):44-8.

Balak 2008 *{published data only}*

Balak Fulya, Roelen Corne AM, Koopmans Petra C, Ten Berge Elike E, Groothoff Johan W. Return to work after early-stage breast cancer: a cohort study into the effects of treatment and cancer-related symptoms. *Journal of Occupational Rehabilitation* 2008;**18**(3):267-72.

Barcenas 2015 *{published data only}*

Barcenas C. Impact of adjuvant chemotherapy on long-term employment of survivors of early-stage breast cancer: Jagsi R, Hawley ST, Abrahamse P, et al (Univ of Michigan, Ann Arbor; Et al) Cancer 120:1854-1862, 2014. *Breast Diseases* 2015;**26**(1):90-2.

Barry 2018 *{published data only}*

Barry L, Storer L, Pitcher M. The impact of a breast cancer diagnosis on women's work status. *Asia-Pacific Journal of Clinical Oncology* 2018;**13**:198-8.

Barry L, Storer L, Pitcher M. The impact of a breast cancer diagnosis on women's work status. *Journal of Clinical Oncology* 2018;**36**(7):-.

Bennett 2009 *{published data only}*

Bennett JA, Brown P, Cameron L, Whitehead LC, Porter D, McPherson KM. Changes in employment and household income during the 24 months following a cancer diagnosis. *Supportive Care in Cancer* 2009;**17**(8):1057-64.

Berlin 2022 *{published data only}*

Berlin NL, Abrahamse P, Momoh AO, Katz SJ, Jagsi R, Hamilton AS, et al. Perceived financial decline related to breast reconstruction following mastectomy in a diverse population-based cohort. *Cancer* 2022;**128**(6):1284-93.

Biddell 2021 *{published data only}*

Biddell CB, Wheeler SB, Angove RS, Gallagher KD, Anderson E, Kent EE, et al. Racial and ethnic differences in the financial consequences of cancer-related employment disruption. *Front. Oncol.* 2021;**11**:690454. [DOI: 10.3389/fonc.2021.690454]

Blasi 2011 *{published data only}*

Blasi G, Bouteyre E, Rollin L. Consultation pluridisciplinaire d?aide ? la reprise du travail apr?s un cancer: Psychopathologie de la r?mission et le retour ? l?emploi = Experience of the multidisciplinary department of 'return to work after a cancer': Psychopathology of remission and return to work. *Psycho-Oncologie* 2011;**5**(1):40-4.

Blinder 2012a *{published data only}*

Blinder V, Patil S, Eberle C, Maly RC. Early predictors of prolonged unemployment after a diagnosis of breast cancer. *Cancer Research* 2012;**71**(24):PD06-09. [DOI: 10.1158/0008-5472.SABCS11-PD06-09]

Blinder 2017 *{published data only}*

Blinder V, Eberle C, Patil S, Gany FM, Bradley CJ. Women with breast cancer who work for accommodating employers more likely to retain jobs after treatment. *Health Affairs* 2017;**36**(2):274-81.

Blinder VS, Eberle CE, Patil S, Oeffinger KC, Bradley C, Gany F. Correlates of work status during adjuvant chemo- or radiation therapy for breast cancer. *Journal of Clinical Oncology* 2016;**34**(15):6556-6.

Blinder VS, Patil S, Eberle C, Jung G, Kampel LJ, Hwang C, et al. Disparities in work status after treatment for breast cancer: A controlled, longitudinal study. *Cancer Epidemiology Biomarkers & Prevention* 2020;**29**(6):PR03.

Blinder Victoria, Eberle Carolyn, Patil Sujata, Gany Francesca M, Bradley Cathy J. Women with breast cancer who work for accommodating employers more likely to retain jobs after treatment. *Health Affairs (Project Hope)* 2017;**36**(2):274-81.

Blinder 2019 *{published data only}*

Blinder VS, Gany FM. Impact of cancer on employment. *Journal of Clinical Oncology* 2019;**38**(4):302-+.

Blinder 2021 *{published data only}*

Blinder VS, Patil S, Eberle CE, Jung G, Kampel LJ, Hwang C, et al. Work status after treatment for breast cancer: A controlled, prospective, longitudinal study of an ethnically diverse cohort. *Journal of Clinical Oncology* 2018;**36**(15):6583-3.

Blinder Victoria S, Eberle Carolyn E, Tran C, Bao T, Malik M, Jung G, et al. Use of patient-reported controls for secular trends to study disparities in cancer-related job loss. *Journal of Cancer Survivorship* 2021;**15**(5):685-92. [DOI: 10.1007/s11764-020-00960-1]

Bloom 2007 *{published data only}*

Bloom J, Maunsell E, Stewart S, Wenzel L, Aziz N. Psychological, social, and employment impacts on breast and cervical cancer survivors. *Psycho-oncology* 2007;**16**(9):S39-S39.

Bohn 2022 *{published data only}*

Bohn SK, Vandraas K, Kiserud CE, Dahl AA, Ewertz M, Lie HC, et al. Work status changes and associated factors in a nation-wide sample of 1324 Norwegian long-term breast cancer survivors. *Cancer Research* 2022;**82**(4):PD5-09. [DOI: 10.1158/1538-7445.SABCS21-PD5-09]

Böttcher 2013 *{published data only}*

B&#xFFFD;ttcher HM, Steimann M, Rotsch M, Zurborn KH, Koch U, Bergelt C. Occupational stress and its association with early retirement and subjective need for occupational rehabilitation in cancer patients. *Psycho-oncology* 2013;**22**(8):1807-14.

Böttcher 2013a *{published data only}*

B&#xFFFD;ttcher HM, Steimann M, Ullrich A, Rotsch M, Zurborn KH, Koch U, et al. Work-related predictors of not returning to work after inpatient rehabilitation in cancer patients. *Acta Oncologica* 2013;**52**(6):1067-75.

Bouzgarrou 2014 *{published data only}*

Bouzgarrou L, Laajili H, Slama A, Kraiem A, Amri C, Khalfallah T, et al. Quality of life and return to work for breast cancer survivors. *International Journal of Gynecological Cancer* 2014;**24**(8):33-3.

Boyages 2016 *{published data only}*

Boyages J, Kalfa S, Xu Y, Koelmeyer L, Mackie H, Viveros H, et al. Worse and worse off: the impact of lymphedema on work and career after breast cancer. *SpringerPlus* 2016;**5**:657.

Bradley 2002 *{published data only}*

Bradley Cathy J, Bednarek Heather L, Neumark David. Breast cancer and women's labor supply. *Health Services Research* 2002;**37**(5):1309-28.

Bradley 2002a *{published data only}*

Bradley Cathy J, Bednarek Heather L, Neumark David. Breast cancer survival, work, and earnings. *Journal of Health Economics* 2002;**21**(5):757-79.

Bradley 2005 *{published data only}*

Bradley Cathy J, Neumark David, Bednarek Heather L, Schenk Maryjean. Short-term effects of breast cancer on labor market attachment: results from a longitudinal study. *Journal of Health Economics* 2005;**24**(1):137-60.

Bradley 2006 *{published data only}*

Bradley Cathy J, Oberst K, Schenk M. Absenteeism from work: the experience of employed breast and prostate cancer patients in the months following diagnosis. *Psycho-oncology* 2006;**15**(8):739-47.

Bradley 2007a *{published data only}*

Bradley Cathy J, Neumark D, Luo Z, Schenk M. Employment and cancer: findings from a longitudinal study of breast and prostate cancer survivors. *Cancer Investigation* 2007;**25**(1):47-54.

Branicki 2020 *{published data only}*

Branicki L, Kalfa S, Brammer S. Conceptualizing responsible return to work: corporate social responsibility in relation to employee return to work after cancer. *Work Employment and Society* 2020;**35**(6):-. [DOI: 10.1177/095001702095509]

Brook 2022 *{published data only}*

Brook RA, Kleinman NL, Beren IA, Schaneman JA, Rosenberg EM. Comparisons of twenty-year trends in direct costs, absence payments and lost time for employees with breast, skin, gi, female, male, and "other" cancers. *Value in Health* 2022;**25**(7):S465.

Brown 2009 *{published data only}*

Brown CG, McGuire DB, Peterson DE, Beck SL, Dudley WN, Mooney KH. The experience of a sore mouth and associated symptoms in patients with cancer receiving outpatient chemotherapy. *Cancer Nursing* 2009;**32**(4):259-70.

Burak 2002 *{published data only}*

Burak William E, Hollenbeck Scott T, Zervos Emmanuel E, Hock Karen L, Kemp Lisa C, Young Donn C. Sentinel lymph node biopsy results in less postoperative morbidity compared with axillary lymph node dissection for breast cancer. *American Journal of Surgery* 2002;**183**(1):23-7.

Bushunow 1995 *{published data only}*

Bushunow PW, Sun Y, Raubertas RF, Rosenthal S. Adjuvant chemotherapy does not affect employment in patients with early-stage breast cancer. *Journal of General Internal Medicine* 1995;**10**(2):73-6.

Bushunow PW, Sun YQ, Raubertas RF, Rosenthal S. Adjuvant chemotherapy does not affect employment in patients with early-stage breast-cancer. *Journal of General Internal Medicine* 1995;**10**(2):73-6.

Calvio 2010 *{published data only}*

Calvio Lisseth, Peugeot Mark, Bruns Gina L, Todd Briana L, Feuerstein Michael. Measures of cognitive function and work in occupationally active breast cancer survivors. *Journal of Occupational and Environmental Medicine* 2010;**52**(2):219-27.

Candon 2015 *{published data only}*

Candon D. The effects of cancer on older workers in the English labour market. *Economics and Human Biology* 2015;**18**:74-84.

Carlsen 2008 *{published data only}*

Carlsen K, Dalton SO, Diderichsen F, Johansen C. Risk for unemployment of cancer survivors: A Danish cohort study. *European Journal of Cancer* 2008;**44**(13):1866-74.

Carlsen 2013 *{published data only}*

Carlsen K, Ewertz M, Dalton SO, Osler M. Unemployment among breast cancer survivors. *Psycho-oncology* 2013;**22**:323-3.

Carlsen 2014 *{published data only}*

Carlsen K, Ewertz M, Dalton Susanne O, Badsberg Jens H, Osler M. Unemployment among breast cancer survivors. *Scandinavian Journal of Public Health* 2014;**42**(3):319-28.

Cattelani 2018 *{published data only}*

Cattelani L, Polotto S, Arcuri Maria F, Pedrazzi G, Linguadoca C, Bonati E. One-step prepectoral breast reconstruction with dermal matrix-covered implant compared to submuscular implantation: functional and cost evaluation. *Clinical Breast Cancer* 2018;**18**(4):e703-e711.

Cavanna 2011 *{published data only}*

Cavanna L, Ambroggi M, Stroppa E, Di Nunzio C, Dallanegra L, Monfredo M. Return to work after treatment for breast cancer. *Breast Cancer Research and Treatment* 2011;**128**(1):287-8.

Cavanna 2019 *{published data only}*

Cavanna L, Monfredo M, Citterio C. [Job loss and return to work of patients with cancer. A prospective observational study on 416 cancer patients.]. *La Malattia Cancro e la Perdita del Lavoro. Studio Osservazionale Prospettico Su 416 Pazienti Oncologici Con Diagnosi di Cancro e in Attivita Lavorativa.* 2019;**110**(7):356-63.

Cernikova 2022 *{published data only}*

Cernikova KA, Kluzova Kracmarova L, Pesoutova M, Tavel P. How fatigue affects return to work in breast cancer patients. *Jak Unava Ovlivnuje Navrat do Prace U Pacientek S Karcinomem Prsu.* 2022;**35**(4):290-6.

Chan 2021 *{published data only}*

Chan RJ, Cooper B, Gordon L, Hart N, Tan CJ, Koczwara B, et al. Distinct employment interference profiles in patients with breast cancer prior to and for 12 months following surgery. *BMC Cancer* 2021;**21**(1):883.

Chapman 2001 *{published data only}*

Chapman Susan Anita. The experience of returning to work for employed young women with breast cancer. ProQuest Dissertations Publishing 2000;**-**:-.

Chen 2020 *{published data only}*

Chen LC, Alexandererson KA. Sick leave and disability pension before and after breast cancer diagnosis: a Swedish cohort study. *European Journal of Public Health* 2019;**29**:ckz187.109. [DOI: 10.1093/eurpub/ckz187.109]

Chen Lingjing, Alexanderson Kristina AE. Trajectories of sickness absence and disability pension in the 2 years before and 3 years after breast cancer diagnosis: A Swedish longitudinal population-based cohort study. *Cancer* 2020;**126**(12):2883-91.

Choi 2015 *{published data only}*

Choi EK, Yun JH, Kim IR, Cho J. Changes in working status and quality of life among breast cancer survivors: a prospective cohort study. *Psycho-oncology* 2015;**24**:70-0.

Clark 1989 *{published data only}*

Clark JC, Landiis LL. Reintegration and maintenance of employees with breast cancer in the workplace. *AAOHN Journal* 1989;**37**(5):186-93.

Criscitiello 2020 *{published data only}*

Criscitiello C, Wild R, Rider A, Williams R, Mitra D, Bambrick C, et al. Work productivity and activity impairment in hr+/her2-early stage breast cancer. *Value in Health* 2020;**23**:S480-S480.

Dadhania 2018 *{published data only}*

Dadhania S, Makris A, Pasha N. A survey of women's experience with treatment for breast cancer on long-term employment. *Clinical Oncology* 2018;**30**(6):E42-E42.

Dahl 2019 *{published data only}*

Dahl Alv A, Fossa Sophie D, Lie Hanne C, Loge Jon Havard, Reinertsen Kristin Valborg, Ruud Ellen, Kiserud Cecilie Essholt. Employment status and work ability in long-term young adult cancer survivors. *Journal of Adolescent and Young Adult Oncology* 2019;**8**(3):304-11.

Damkjaer 2011 *{published data only}*

Damkjaer Lars H, Deltour I, Suppli Nis P, Christensen J, Kroman Niels T, Johansen C, et al. Breast cancer and early retirement: Associations with disease characteristics, treatment, comorbidity, social position and participation in a six-day rehabilitation course in a register-based study in Denmark. *Acta Oncologica (Stockholm, Sweden)* 2011;**50**(2):274-81.

Dayan 2022 *{published data only}*

Dayan D, Singer S, Leinert E, Janni W, Kuhn T, Flock F, et al. Effect of social services on financial and role functioning and employment in breast cancer patients with high social burden - Results of the prospective multi-centre study BRENDA II. Part 2. *Oncol. Res. Treat.* 2022;**45**(SUPPL 3):33.

De Azua 2022 *{published data only}*

De Azua GR, Vaz-Luis I, Bovagnet T, Di Meglio A, Havas J, Caumette E, et al. Perceived discrimination at work: examining social, health and work-related factors as determinants among breast cancer survivors - evidence from the prospective CANTO cohort. *J. Epidemiol. Community Health* 2022;**76**(11):918-24.

Denning 2016 *{published data only}*

Denning J, Hunter N. Breast cancer and return to work: a pilot. *Breast Cancer Research and Treatment* 2016;**159**(1):196-6.

Donceel 2010 *{published data only}*

Chair: Peter D, Belgium. Workshop: Research on sick leave and return to work after breast cancer surgery. In: European Journal of Public Health. Vol. 20. 2010:59-9.

Donskaia 1984 *{published data only}*

Donskaia LV, Artemkina NI. [Work capacity of patients having undergone radical therapy of breast cancer]. *Trudosposobnost' Bol'nykh, Perenesshikh Radikal'noe Lechenie Po Povodu Raka Molochnoi Zhelezy.* 1984;**30**(5):98-105.

Drolet 2005 *{published data only}*

Drolet M, Maunsell E, Mondor M, Brisson C, Brisson J, Masse B, et al. Work absence after breast cancer diagnosis: a population-based study. *CMAJ: Canadian Medical Association Journal* 2005;**173**(7):765-71.

Drolet 2008 *{published data only}*

Drolet M, Maunsell E, Mondor M, Brisson J, Brisson C. How does breast cancer affect absence from work? Results from a population-based, comparative study. *Psycho-oncology* 2008;**13**(8):S222-S222.

Dumas 2022 *{published data only}*

Dumas A, Menvielle G. [Socio-professional life after cancer]. *La Vie Socioprofessionnelle Apres un Cancer.* 2022;**71**(281):29-30.

Dutkevitch 2017 *{published data only}*

Dutkevitch S, Nielsen A, Dodson J, Howard C, Storey S, Von Ah D. Relationship between attentional fatigue and perceived work ability in breast cancer survivors. *Oncology Nursing Forum* 2017;**43**(2):124-4.

Eaker 2011 *{published data only}*

Eaker S, Wigertz A, Lambert Paul C, Bergkvist L, Ahlgren J, Lambe M, et al. Breast cancer, sickness absence, income and marital status. A study on life situation 1 year prior diagnosis compared to 3 and 5 years after diagnosis. *PloS One* 2011;**6**(3):e18040.

Ebenhan 2013 *{published data only}*

Ebenhan K, Leuteritz K, Barthel Y, Beutel ME, Papsdorf K, Weissflog G, et al. Children and employment - resource or stressors after breast cancer? *Geburtshilfe und Frauenheilkunde* 2013;**73**(8):792-9.

Eberle 2012 *{published data only}*

Eberle CE, Min SH, Jung S, Ramirez J, Patil S, Gany F, et al. Work status and financial stability during treatment for early breast cancer: a pilot study of an ethnically diverse sample. *Cancer Research* 2012;**72**:P2-11-05.

Ekenga 2018 *{published data only}*

Ekenga Christine C, Perez Maria, Margenthaler Julie A, Jeffe Donna B. Early-stage breast cancer and employment participation after 2 years of follow-up: A comparison with age-matched controls. *Cancer* 2018;**124**(9):2026-35.

Ekenga 2018a *{published data only}*

Ekenga CC, Perez M, Margenthaler JA, Jeffe DB. Employment participation after early-stage breast cancer: Patterns and determinants. *Cancer Epidemiology Biomarkers & Prevention* 2018;**27**(7):176-7.

Ekenga 2020 *{published data only}*

Ekenga CC, Kwon E, Kim B, Park S. Long-term employment outcomes among female cancer survivors. *International Journal of Environmental Research and Public Health* 2020;**17**(8):2751. [DOI: 10.3390/ijerph17082751]

Elham 2020 *{published data only}*

Elham H, Gernaat SA M, Johnsson A, Wilking UM, Altena R. Sickness absence and disability pension among Swedish women before breast cancer relapse. *Journal of Clinical Oncology* 2020;**38**(15):e14121. [DOI: 10.1200/JCO.2020.38.15_suppl.e14121]

Emerson 2022 *{published data only}*

Emerson MA, Reeve BB, Gilkey MB, Elmore SN, Bradley CJ, Troester MA. Consequent job loss, return to work and multidimensional well-being after breast cancer treatment in working-age black and white women. *Cancer Research* 2022;**82**(4):PD5-10. [DOI: 10.1158/1538-7445.SABCS21-PD5-10]

Emerson MA, Reeve BB, Gilkey MB, Elmore SN, Hayes S, Bradley CJ, et al. Job loss, return to work, and multidimensional well-being after breast cancer treatment in working-age Black and White women. *J. Cancer Surviv.-Res. Pract.* 2022;**14**:-. [DOI: 10.1007/s11764-022-01252-6]

Endo 2016 *{published data only}*

Endo M, Haruyama Y, Takahashi M, Nishiura C, Kojimahara N, Yamaguchi N. Returning to work after sick leave due to cancer: a 365-day cohort study of Japanese cancer survivors. *Journal of Cancer Survivorship* 2016;**10**(2):320-9.

Fantoni 2010 *{published data only}*

Fantoni SQ, Peugniez C, Duhamel A, Skrzypczak J, Frimat P, Leroyer A. Factors related to return to work by women with breast cancer in northern France. *Journal of Occupational Rehabilitation* 2010;**201**:49-58.

Fantoni Sophie Q, Peugniez C, Duhamel A, Skrzypczak J, Frimat P, Leroyer A. Factors related to return to work by women with breast cancer in northern France. *Journal of Occupational Rehabilitation* 2010;**20**(1):49-58.

Ferrier 2021 *{published data only}*

Ferrier C, Thebaut C, Levy P, Baffert S, Rine, Asselain B, et al. Absenteeism and indirect costs during the year following the diagnosis of an operable breast cancer: A prospective multicentric cohort study. *Journal of Gynecology Obstetrics and Human Reproduction* 2021;**50**(6):101871.

Ganem 2016 *{published data only}*

Ganem G, Antoine EC, Touboul C, Naman H, Dohollou N, Facchini T, et al. Maintaining professional activity during breast cancer treatment. *European Journal of Cancer Care* 2016;**25**(3):458-65.

Garcia-Torres 2018 *{published data only}*

Garcia-Torres F, Castillo-Mayen R, Alos Francisco J. Psychoticism and employment status in breast cancer survivors. *Psycho-oncology* 2018;**27**(1):359-61.

Gernaat 2021 *{published data only}*

Gernaat Sofie A, Johnsson A, Altena R, Wilking U, Hedayati E. Sickness absence and disability pension among Swedish women prior to breast cancer relapse with a special focus on the roles of treatment and comorbidity. *European Journal of Cancer Care* 2021;**30**(1):e13353.

Gesellschaft 2004 *{published data only}*

Gesellschaft D FaG Deutsche Fatige. [Only every second female patient with breast cancer will successfully complete occupational reintegration]. *Fortgeschrittenes Kolorektlaes Karzinom. Anti-Angiogenese Mit Bevacizumab: Durchbruch in der Palliativen Therapie.* 2004;**27**(6):594-5.

Ghasempour 2020 *{published data only}*

Ghasempour M, Shabanloei R, Rahmani A, Jafarabadi MA, Abri F, Khajehgoodari M. The relation of readiness for return to work and return to work among Iranian cancer survivors. *Journal of Cancer Education* 2020;**35**(6):1237-42.

Giordani 2017 *{published data only}*

Giordani S, Pandolfi P, Teneggi C. Assessment of critical factors related to return to work in women after breast cancer. *Annals of Oncology* 2017;**28**(6):VI31. [DOI: 10.1093/annonc/mdx424.021]

Gordon 2007 *{published data only}*

Gordon L, Scuffham P, Hayes S, Newman B. Exploring the economic impact of breast cancers during the 18 months following diagnosis. *Psycho-oncology* 2007;**16**(12):1130-9.

Goss 2014 *{published data only}*

Goss C, Leverment IM G, de Bono AM. Breast cancer and work outcomes in health care workers. *Occupational Medicine (Oxford, England)* 2014;**64**(8):635-7.

Gragnano 2021 *{published data only}*

Gragnano A, Miglioretti M, Magon G, Pravettoni G. Work with cancer or stop working after diagnosis? Variables affecting the decision. *Work (Reading, Mass.)* 2021;**70**(1):177-85.

Gregorowitsch 2018 *{published data only}*

Gregorowitsch M. Self-reported work ability in breast cancer patients during and after breast cancer treatment. *Radiotherapy and Oncology* 2018;**127**:S719-S719.

Grinshpun 2019 *{published data only}*

Grinshpun A, Rottenberg Y. Unemployment following breast cancer diagnosis: A population-based study. *Breast (Edinburgh, Scotland)* 2019;**44**:24-8.

Hassett 2009 *{published data only}*

Hassett Michael J, O'Malley A James, Keating Nancy L. Factors influencing changes in employment among women with newly diagnosed breast cancer. *Cancer* 2009;**115**(12):2775-82.

Hastert 2020 *{published data only}*

Hastert Theresa A, Kirchhoff Anne C, Banegas Matthew P, Morales Joanna F, Nair Mrudula, Beebe-Dimmer Jennifer L, et al. Work changes and individual, cancer-related, and work-related predictors of decreased work participation among African American cancer survivors. *Cancer Medicine* 2020;**9**(23):9168-77.

Hauglann 2012 *{published data only}*

Hauglann Beate, Benth Jurate Saltyte, Fossa Sophie D, Dahl Alv A. A cohort study of permanently reduced work ability in breast cancer patients. *Journal of Cancer Survivorship* 2012;**6**(3):345-56.

Hedayati 2022 *{published data only}*

Hedayati Elham. The effects of breast cancer treatment on cognitive functions. Thesis 2012;**-**(-):-. [WEBSITE: https://openarchive.ki.se/xmlui/handle/10616/40843]

Heiman 2023 *{published data only}*

Heiman J, Pavia J, Bock D, Haglind E, Olofsson Bagge R. Sick leave and predictive factors for sick leave at 12 months after breast cancer surgery in the randomized controlled physical activity trial (PhysSURG-B). *Surgeon* 2023;**2**:-. [DOI: 10.1016/j.surge.2022.12.001]

Heinesen 2013 *{published data only}*

Heinesen E, Kolodziejczyk C. Effects of breast and colorectal cancer on labour market outcomes-average effects and educational gradients. *Journal of Health Economics* 2013;**32**(6):1028-42.

Heinesen 2017 *{published data only}*

Heinesen E, Kolodziejczyk C, Ladenburg J, Andersen I, Thielen K. Return to work after cancer and pre-cancer job dissatisfaction. *Applied Economics* 2017;**49**(49):4982-98.

Heinesen 2018 *{published data only}*

Heinesen E, Imai S, Maruyama S. Employment, job skills and occupational mobility of cancer survivors. *Journal of Health Economics* 2018;**58**:151-75.

Hequet 2022 *{published data only}*

Hequet D, Hamy A, Girard N, Laas E, Coussy F, Rouzier R, et al. Variation over time of the factors influencing return to work and work capacities after a diagnosis of breast cancer: a study on the behalf of the Seintinelles research network. *Supportive Care in Cancer* 2022;**30**(7):5991-9.

Hernandez 2021 *{published data only}*

Hernandez D, Schlander M. Income loss after a cancer diagnosis in Germany: An analysis based on the socio-economic panel survey. *Cancer Medicine* 2021;**10**(11):3726-40.

Heuser 2018 *{published data only}*

Heuser C, Halbach S, Kowalski C, Enders A, Pfaff H, Ernstmann N. Sociodemographic and disease-related determinants of return to work among women with breast cancer: a German longitudinal cohort study. *BMC Health Services Research* 2018;**18**(1):1000.

Hinman 2001 *{published data only}*

Hinman MR. Factors influencing work disability for women who have undergone mastectomy. *Women & Health* 2001;**34**(2):45-60.

Hjorth 2023 *{published data only}*

Hjorth CF, Damkier P, Stage TB, Feddersen S, Hamilton-Dutoit S, Ejlertsen B, et al. The impact of single nucleotide polymorphisms on return-to-work after taxane-based chemotherapy in breast cancer. *Cancer Chemotherapy and Pharmacology* 2023;**91**(2):157-65. [DOI: 10.1007/s00280-022-04499-z]

Hoffart Bøhn 2022 *{published data only}*

Hoffart B�hn SK, Vandraas KF, Kiserud CE, Dahl AA, Thorsen L, Ewertz M, et al. Work status changes and associated factors in a nationwide sample of Norwegian long-term breast cancer survivors. *Journal of Cancer Survivorship* 2022;**22**:-. [DOI: 10.1007/s11764-022-01202-2]

Hwa 2011 *{published data only}*

Hwa YS, Abd Shatar AK, Hashim H. The socioeconomic impacts of breast cancer on breast cancer patients in penang. *Kaji. Malays.* 2011;**29**(2):111-36.

Jagsi 2013 *{published data only}*

Jagsi R, Pottow JA E, Griffith KA, Hamilton AS, Graff J, Katz SJ, et al. Racial and ethnic variation in employment and financial experiences of breast cancer survivors. *Journal of Clinical Oncology* 2013;**31**(15):9601.

Jagsi 2014 *{published data only}*

Jagsi Reshma, Hawley Sarah T, Abrahamse Paul, Li Yun, Janz Nancy K, Griggs Jennifer J, et al. Impact of adjuvant chemotherapy on long-term employment of survivors of early-stage breast cancer. *Cancer* 2014;**120**(12):1854-62.

Jagsi 2017 *{published data only}*

Jagsi Reshma, Abrahamse Paul H, Lee Kamaria L, Wallner Lauren P, Janz Nancy K, Hamilton Ann S, et al. Treatment decisions and employment of breast cancer patients: Results of a population-based survey. *Cancer* 2017;**123**(24):4791-9.

Janssen 2022 *{published data only}*

Janssen SH, van der Meer DJ, van Eenbergen M, Manten-Horst E, van der Graaf WT, Husson O. Short- and long-term impact of cancer on employment and financial outcomes of adolescents and young adults (AYAs): a large population-based case-control registry study in the Netherlands. *ESMO Open* 2022;**7**(4):100521. [DOI: 10.1016/j.esmoop.2022.100521]

Jensen 2019a *{published data only}*

Jensen L, Boggild H, Overgaard C, Fonager K. The effect of breast cancer on work participation in different sectors. A Danish registry based study. *European Journal of Public Health* 2019;**29**(4):-. [DOI: 10.1093/eurpub/ckz185.057]

Jeon 2017 *{published data only}*

Jeon SH. The long-term effects of cancer on employment and earnings. *Health Economics* 2017;**26**(5):671-84.

Jeon 2019 *{published data only}*

Jeon S, Pohl R V. Medical innovation, education, and labor market outcomes of cancer patients. *Journal of Health Economics* 2019;**68**:102228.

Kacem 2022 *{published data only}*

Kacem I, Koubaa A, Bannour I, Kahloul M, Soussi M, Ben Slama AY, et al. Associated factors with return to work in Breast Cancer survivors. *Saf. Health Work* 2022;**13**:S284.

Kalawsky 2009 *{published data only}*

Kalawsky K. The influence of breast cancer treatment on cognitive ability and employment pathways. *Psycho-oncology* 2009;**18**(3):318-8.

Kelsall 2017 *{published data only}*

Kelsall Jennett E, McCulley Stephen J, Brock Lisa, Akerlund Malin TE, Macmillan R Douglas. Comparing oncoplastic breast conserving surgery with mastectomy and immediate breast reconstruction: Case-matched patient reported outcomes. *Journal of Plastic, Reconstructive & Aesthetic Surgery* 2017;**70**(10):1377-85.

Ketterl 2018 *{published data only}*

Ketterl TG, Casillas JN, Ganz PA, Jacobs LA, McCabe MS, Palmer SC, et al. Impact of cancer on employment and finances in young adult (YA) survivors. *Journal of Clinical Oncology* 2018;**36**(15):10013. [DOI: 10.1200/JCO.2018.36.15_suppl.10013]

Kiasuwa 2018 *{published data only}*

Kiasuwa Mbengi Regine L, Nicolaie Alina M, Goetghebeur E, Otter R, Mortelmans K, Missinnne S, et al. Assessing factors associated with long-term work disability after cancer in Belgium: a population-based cohort study using competing risks analysis with a 7-year follow-up. *BMJ Open* 2018;**8**(2):e014094.

Kobayashi 2021 *{published data only}*

Kobayashi M, Kako J, Kajiwara K, Ogata A. The effects of curative-intent cancer therapy on employment, work ability, and work limitations. *Cancer* 2021;**127**(16):3031-2.

Koch 2006 *{published data only}*

Koch U, Mehnert A. Medical rehabilitation of breast cancer patients in Germany: Conditions and predictors of return to work. *Psycho-oncology* 2006;**15**(2):S72-S73.

Kollerup 2021 *{published data only}*

Kollerup A, Ladenburg J, Heinesen E, Kolodziejczyk C. The importance of workplace accommodation for cancer survivors-The role of flexible work schedules and psychological help in returning to work. *Econ. Hum. Biol.* 2021;**43**:101057-The Danish Center for Social Science Research, Herluf Trollesgade 11, DK.

Kolodziejczyk 2016 *{published data only}*

Kolodziejczyk C, Heinesen E. Labour market participation after breast cancer for employees from the private and public sectors: Educational and sector gradients in the effect of cancer. *Economics and Human Biology* 2016;**21**:33-55.

Kvillemo 2017 *{published data only}*

Kvillemo P, Mittendorfer-Rutz E, Branstrom R, Nilsson K, Alexanderson K. Sickness absence and disability pension after breast cancer: a five-year nationwide cohort study. *European Journal of Public Health* 2017;**26**:70-0.

Kvillemo P, Mittendorfer-Rutz E, Branstrom R, Nilsson K, Alexerson K. Sickness absence and disability pension after breast cancer diagnosis: a 5-year nationwide cohort study. *Journal of Clinical Oncology* 2017;**35**(18):2044-52.

Kvillemo 2021 *{published data only}*

Kvillemo Pia K, Chen L, Bottai M, Frumento P, Almondo G, Mittendorfer-Rutz E, et al. Sickness absence and disability pension among women with breast cancer: a population-based cohort study from Sweden. *BMC Public Health* 2021;**21**(1):697.

Lambert-Obry 2016 *{published data only}*

Lambert-Obry V, Laliberte AG, Castonguay A, Zanotti G, Banerjee R, Mates M, et al. A real-world outcome research study on quality of life, work productivity and healthcare resource utilization in metastatic breast cancer for patients and caregivers. *Value in Health* 2016;**19**(7):A616-A616.

Landeiro 2022 *{published data only}*

Landeiro L, Barros LH, Neumann LT, Santos AM, Siqueira AC, Kaliks R. Return to work after breast cancer: Disparities among patients treated in public and private hospitals in Brazil. *Cancer Research* 2022;**82**(4):P4-11-17.

Lee 1992 *{published data only}*

Lee MS, Love SB, Mitchell JB, Parker EM, Rubens RD, Watson JP, et al. Mastectomy or conservation for early breast cancer: psychological morbidity. *European Journal of Cancer (Oxford, England: 1990)* 1992;**28**(8):1340-4.

Lee 2015 *{published data only}*

Lee MK, Yun YH. Working situation of cancer survivors versus the general population. *Journal of Cancer Survivorship* 2015;**9**(2):349-60.

Lee 2017 *{published data only}*

Lee Myung K, Kang Han S, Lee Keun S, Lee Eun S. Three-year prospective cohort study of factors associated with return to work after breast cancer diagnosis. *Journal of Occupational Rehabilitation* 2017;**27**(4):547-58.

Leidenius 2005 *{published data only}*

Leidenius M, Leivonen M, Vironen J, von Smitten K. The consequences of long-time arm morbidity in node-negative breast cancer patients with sentinel node biopsy or axillary clearance. *Journal of Surgical Oncology* 2005;**92**(1):23-31.

Lewis 2020 *{published data only}*

Lewis J, Mackenzie L, Black D. Workforce participation of Australian women with breast cancer. *Psycho-oncology* 2020;**29**(7):1156-64.

Li 2021 *{published data only}*

Li M, Gao J, Li M, Wang L. The assessment of returning to work following treatment and the associated personal, disease, and treatment factors among breast cancer survivors in central China. *Supportive Care in Cancer* 2021;**29**(12):7627-36.

Lindbohm 2014 *{published data only}*

Lindbohm ML, Kuosma E, Taskila T, Hietanen P, Carlsen K, Gudbergsson S, et al. Early retirement and non-employment after breast cancer. *Psycho-oncology* 2014;**23**(6):634-41.

Lindqvist 2005 *{published data only}*

Lindqvist R, Stenbeck M, Diderichsen F. Does hospital discharge policy influence sick-leave patterns in the case of female breast cancer? *Health Policy (Amsterdam, Netherlands)* 2005;**72**(1):65-71.

Lo 2019 *{published data only}*

Lo JC. Employment pathways of cancer survivors-analysis from administrative data. *European Journal of Health Economics* 2019;**20**(5):637-45.

Lucci 2004 *{published data only}*

Lucci A, Shoher A, Sherman Marc O, Azzizadeh A. Assessment of the current Medicare reimbursement system for breast cancer operations. *Annals of Surgical Oncology* 2004;**11**(12):1037-44.

Luis 2018 *{published data only}*

Luis Imvd, O'Neill AM, Sepucha K, Miller KD, Dang CT, Northfelt DW, et al. Symptom burden and employment status in breast cancer (BC) survivors. *Journal of Clinical Oncology* 2018;**36**(15):10073. [DOI: 10.1200/JCO.2018.36.15_suppl.10073]

Lundh 2014 *{published data only}*

Lundh Marie H, Lampic C, Nordin K, Ahlgren J, Bergkvist L, Lambe M, et al. Sickness absence and disability pension following breast cancer - A population-based matched cohort study. *Breast (Edinburgh, Scotland)* 2014;**23**(6):844-51.

Lyons 2019 *{published data only}*

Lyons Kathleen D, Newman Robin M, Sullivan M, Pergolotti M, Braveman B, Cheville Andrea L. Employment concerns and associated impairments of women living with advanced breast cancer. *Archives of Rehabilitation Research and Clinical Translation* 2019;**1**(1):100004.

Mahumud 2020 *{published data only}*

Mahumud RA, Alam K, Dunn J, Gow J. The changing relationship between health burden and work disability of Australian cancer survivors, 2003-2017: evidence from a longitudinal survey. *BMC Public Health* 2020;**20**(1):548. [DOI: 10.1186/s12889-020-08710-9]

McArdle 1981 *{published data only}*

McArdle CS, Calman KC, Cooper AF, Hughson AV, Russell AR, Smith DC. The social, emotional and financial implications of adjuvant chemotherapy in breast cancer. *British Journal of Surgery* 1981;**68**(4):261-4.

Mehnert 2017 *{published data only}*

Mehnert A, Barth J, Gaspar M, Leibbr B, Kegel CD, Bootsveld W, et al. Predictors of early retirement after cancer rehabilitation-a longitudinal study. *European Journal of Cancer Care* 2017;**26**(5):-. [DOI: 10.1111/ecc.12528]

Mersni 2021 *{published data only}*

Mersni M, Belfkih H, Bani M, Youssef I, Rais H. [Predictive factors of maintain of employment and return to work after cancer]. *Facteurs Predictifs de Maintien en Emploi et de Retour Au Travail Apres un Cancer.* 2021;**108**(3):272-83.

Miedema 2007 *{published data only}*

Miedema B, Towers A, Thomas-MacLean R, Hack TF, Kwan W, Tatemichi S, et al. Who returns to work, and who takes sick leave 6-12 months post breast cancer surgery? The impact

of medical, psychological and social issues. *Psycho-oncology* 2007;**16**(9):S195-S196.

Molina 2008 *{published data only}*

Molina R, Feliu J, Villalba A, San Jose B, Jimenez AM, Espinosa E, et al. Employment in a cohort of cancer patients in Spain. A predictive model of working outcomes. *Clinical & Translational Oncology* 2008;**10**(12):826-30.

Molina 2008a *{published data only}*

Molina Villaverde R, Feliu Batlle J, Villalba Yllan A, Jimenez Gordo AM, Redondo Sanchez A, San Jose Valiente B, et al. Employment in a cohort of breast cancer patients. *Occupational Medicine (Oxford, England)* 2008;**58**(7):509-11.

Monteiro 2019 *{published data only}*

Monteiro I, Morais S, Costa Ana R, Lopes-Conceicao L, Araujo N, Fontes F, et al. Changes in employment status up to 5 years after breast cancer diagnosis: A prospective cohort study. *Breast (Edinburgh, Scotland)* 2019;**48**:38-44.

Morris 1988 *{published data only}*

Morris J, Ingham R. Choice of surgery for early breast cancer: psychosocial considerations. *Social Science & Medicine (1982)* 1988;**27**(11):1257-62.

Mourgues 2014 *{published data only}*

Mourgues C, Gerbaud L, Leger S, Auclair C, Peyrol F, Blanquet M, et al. Positive and cost-effectiveness effect of spa therapy on the resumption of occupational and non-occupational activities in women in breast cancer remission: A French multicentre randomised controlled trial. *European Journal of Oncology Nursing* 2014;**18**(5):505-11.

Mujahid 2010 *{published data only}*

Mujahid Mahasin S, Janz Nancy K, Hawley Sarah T, Griggs Jennifer J, Hamilton Ann S, Katz Steven J. The impact of sociodemographic, treatment, and work support on missed work after breast cancer diagnosis. *Breast Cancer Research and Treatment* 2010;**119**(1):213-20.

Mujahid 2011 *{published data only}*

Mujahid Mahasin S, Janz Nancy K, Hawley Sarah T, Griggs Jennifer J, Hamilton Ann S, Graff John, et al. Racial/ethnic differences in job loss for women with breast cancer. *Journal of Cancer Survivorship* 2011;**5**(1):102-11.

Murray 2015 *{published data only}*

Murray K, Lam KB H, McLoughlin DC, Sadhra SS. Predictors of return to work in cancer survivors in the royal air force. *Journal of Occupational Rehabilitation* 2015;**25**(1):153-9.

Musti 2018 *{published data only}*

Musti Muriel A, Collina N, Stivanello E, Bonfiglioli R, Giordani S, Morelli C, et al. Perceived work ability at return to work in women treated for breast cancer: a questionnaire-based study. *Medicina del Lavoro* 2018;**109**(6):407-19.

Naughton 2020 *{published data only}*

Naughton Michelle J, Beverly Hery Chloe M, Janse Sarah A, Naftalis Elizabeth Z, Paskett Electra D, Van Zee Kimberly J. Prevalence and correlates of job and insurance problems among young breast cancer survivors within 18 months of diagnosis. *BMC Cancer* 2020;**20**(1):432.

Nikolayeva 1985 *{published data only}*

Nikolayeva VV, Shubin BM, Koshug NG. The role of motivation for work in rehabilitation of breast-cancer patients. *Voprosy Onkologii* 1985;**31**(1):97-101.

Nilsson 2013 *{published data only}*

Nilsson Marie I, Petersson L, Wennman-Larsen A, Olsson M, Vaez M, Alex, et al. Adjustment and social support at work early after breast cancer surgery and its associations with sickness absence. *Psycho-oncology* 2013;**22**(12):2755-62.

Nilsson 2016 *{published data only}*

Nilsson H, Angeras U, Bock D, Borjesson M, Onerup A, Fagevik Olsen M, et al. Is preoperative physical activity related to post-surgery recovery? A cohort study of patients with breast cancer. *BMJ Open* 2016;**6**(1):e007997.

Nilsson 2016a *{published data only}*

Nilsson Marie I, Saboonchi F, Alex, Erson K, Olsson M, Wennman-Larsen A, et al. Changes in importance of work and vocational satisfaction during the 2 years after breast cancer surgery and factors associated with this. *Journal of Cancer Survivorship* 2016;**10**(3):564-72.

Niyazov 2019 *{published data only}*

Niyazov A, Lewis K, Rider A. Real world multi-country retrospective study of treatment travel time and work productivity burden among her2-negative advanced breast cancer patients with a brca1/2 mutation. *Value in Health* 2019;**22**:S532-S532.

No authors listed 2009 *{published data only}*

No authors listed. Clinical digest. Unemployment rate high in people who have had cancer. *Nursing Standard* 2009;**23**(41):17-7.

No authors listed 2011 *{published data only}*

[No authors listed]. Problems faced when returning to work after a breast cancer [Difficult&#xfffd;s rencontr&#xfffd;es lors de la reprise du travail apr&#xfffd;s un cancer du sein]. *Archives Des Maladies Professionnelles Et De L Environnement* 2011;**72**(6):584-+. [DOI: 10.1016/j.admp.2011.10.012]

No authors listed 2014 *{published data only}*

No authors listed. Clinical digest. Chemotherapy can affect return-to-work prospects for breast cancer patients. *Nursing Standard* 2014;**28**(36):16-6.

No authors listed 2015 *{published data only}*

No authors listed. Life with breast cancer - Late complications and professional reintegration. *Der Radiologe* 2005;**45**(2):152-2.

No authors listed 2016 *{published data only}*

No authors listed. Erratum: Working with cancer: health and employment among cancer survivors (Annals of Epidemiology (2015) 25(11) (832-838) (S1047279715003373)

(10.1016/j.annepidem.2015.07.011)). *Annals of Epidemiology* 2016;**26**(7):520.

No authors listed 2017 *{published data only}*

No authors listed. Abstracts of the 2017 world congress of psycho-oncology. *Psycho-oncology* 2017;**26**:3-167. [DOI: 10.1002/pon.4476]

Oberst 2010 *{published data only}*

Oberst K, Bradley C. Work-related disabilities in breast and prostate cancer patients. *American Journal of Epidemiology* 2006;**163**(11):S99-S99.

Oberst Kathleen, Bradley Cathy J, Gardiner Joseph C, Schenk Maryjean, Given Charles W. Work task disability in employed breast and prostate cancer patients. *Journal of Cancer Survivorship* 2010;**4**(4):322-30.

Ortega 2017 *{published data only}*

Ortega CC F, Veiga DF, Camargo K, Veiga J, Juliano Y, Sabino-Neto M, et al. Capacity for work and productivity after breast cancer surgical treatment. *Journal of Womens Health* 2017;**26**(4):A54-A54.

Osowiecka 2007 *{published data only}*

Osowiecka K, Litwiniuk M, Tomczak P. Return to work after adjuvant treatment for breast cancer. *Breast (Edinburgh, Scotland)* 2007;**16**:S65-S65.

Paraponaris 2010 *{published data only}*

Paraponaris A, Teyssier LS, Ventelou B. Job tenure and self-reported workplace discrimination for cancer survivors 2 years after diagnosis: Does employment legislation matter? *Health Policy* 2010;**98**(2):144-55.

Park 2008 *{published data only}*

Park JH, Park EC, Park JH, Kim SG, Lee SY. Job loss and re-employment of cancer patients in Korean employees: A nationwide retrospective cohort study. *Journal of Clinical Oncology* 2008;**26**(8):1302-9.

Park 2010 *{published data only}*

Park JH, Park JH, Kim SG, Lee KS, Hahm MI. Changes in employment status and experience of discrimination among cancer patients: findings from a nationwide survey in Korea. *Psycho-oncology* 2010;**19**(12):1303-12.

Partridge 2016 *{published data only}*

Partridge AH, Rosenberg SM, Rajagopal PS, Ruddy KJ, Tamimi RM, Schapira L, et al. Employment trends in young women following a breast cancer diagnosis. *Cancer Research* 2016;**76**:P4-10-04-P4-10-04. [DOI: 10.1158/1538-7445.SABCS15-P4-10-04]

Pekkala 2018 *{published data only}*

Pekkala J, Suur-Uski J, Blomgren J, Pietilainen O, Rahkonen O, Manty M. Sickness absence due to breast cancer by occupational class among Finnish women during 2005-2013. *European Journal of Public Health* 2018;**28**:64-4.

Petersson 2018 *{published data only}*

Petersson L, Vaez M, Nilsson Marie I, Saboonchi F, Alex, Erson K, et al. Sickness absence following breast cancer surgery: a two-year follow-up cohort study. *Scandinavian Journal of Caring Sciences* 2018;**32**(2):715-24.

Petersson L, Vaez M, Nilsson Marie I, Saboonchi F, Alex, Erson K, et al. Sickness absence following breast cancer surgery: a two-year follow-up cohort study. *Scandinavian Journal of Caring Sciences* 2018;**32**(2):715-24.

Petralia 1995 *{published data only}*

Petralia S, Vena J, Freudenheim J, Swanson M, Graham S. Lifetime occupation and breast-cancer. *American Journal of Epidemiology* 1995;**141**(11):S29-S29.

Petrescu 2021 *{published data only}*

Petrescu I, Simion L, Dogaru Ioana M. Tips and tricks for successful breast reconstruction following radiotherapy using the implant-enhanced latissimus dorsi flap. *Chirurgia* 2021;**116**(2):214-23.

Peuckmann 2009 *{published data only}*

Peuckmann V, Ekholm O, Sjogren P, Rasmussen NK, Christiansen P, Moller S, et al. Health care utilisation and characteristics of long-term breast cancer survivors: nationwide survey in Denmark. *European Journal of Cancer (Oxford, England: 1990)* 2009;**45**(4):625-33.

Peugniez 2010 *{published data only}*

Peugniez C, Fantoni S, Leroyer A, Skrypczak J, Duprey M, Bonneterre J. Return to work after treatment for breast cancer: single center experience in a cohort of 273 patients. *Cancer Research* 2010;**69**(24):557S-558S.

Peugniez C, Fantoni S, Leroyer A, Skrzypczak J, Duprey M, Bonneterre J. Return to work after treatment for breast cancer: single center experience in a cohort of 273 patients. *Bulletin du Cancer* 2011;**98**(7):E69-79.

Peugniez C, Fantoni S, Leroyer A, Skrzypczak J, Duprey M, Bonneterre J. Return to work after treatment for breast cancer: single-center experience in a cohort of 273 patients. *Annals of Oncology : Official Journal of the European Society for Medical Oncology* 2010;**21**(10):2124-5.

Plym 2018 *{published data only}*

Plym A, Bower H, Fredriksson I, Holmberg L, Lambert PC, Lambe M. Loss in working years after a breast cancer diagnosis. *British Journal of Cancer* 2018;**118**(5):738-43.

Plym 2019 *{published data only}*

Plym A, Johansson Anna L, Bower H, Voss M, Holmberg L, Fredriksson I, et al. Causes of sick leave, disability pension, and death following a breast cancer diagnosis in women of working age. *Breast (Edinburgh, Scotland)* 2019;**45**:48-55.

Plym 2020 *{published data only}*

Plym A, Johansson Anna L, Bower H, Wennstig A, Fredriksson I, Ahlgren J, et al. Impact of chemotherapy, radiotherapy, and endocrine therapy on sick leave in women with early-stage breast cancer during a 5-year period: a population-

based cohort study. *Breast Cancer Research and Treatment* 2020;**182**(3):699-707.

Pryce 2007 *{published data only}*

Pryce J, Munir F, Haslam C. Cancer survivorship and work: Symptoms, supervisor response, co-worker disclosure and work adjustment. *Journal of Occupational Rehabilitation* 2007;**17**(1):83-92.

Quinlan 2009 *{published data only}*

Quinlan E, Thomas-MacLean R, Hack T, Kwan W, Miedema B, Tatemichi S, et al. The impact of breast cancer among Canadian women: disability and productivity. *Work (Reading, Mass.)* 2009;**34**(3):285-96.

Quinlan 2011 *{published data only}*

Quinlan E, Maclean R, Hack T, Tatemichi S, Towers A, Kwan W, et al. Breast cancer survivorship and work disability. *Journal of Disability Policy Studies* 2011;**22**(1):18-27.

Remolina-Bonilla 2017 *{published data only}*

Remolina-Bonilla YA, Leon-Rodriguez E, Armengol-Alonso A. Impact of symptom burden on employment and quality of life in long-term Mexican breast cancer survivors treated in a tertiary referral center. *Cancer Research* 2018;**78**(4):P6-12-20.. [DOI: 10.1158/1538-7445.SABCS17-P6-12-20]

Ribi 2022 *{published data only}*

Ribi K, Pagan E, Sala I, Ruggeri M, Bianco N, Bucci EO, et al. Employment trajectories of young women with breast cancer: an ongoing prospective cohort study in Italy and Switzerland. *J. Cancer Surviv.-Res. Pract.* 2022;**10**:-. [DOI: 10.1007/s11764-022-01222-y]

Rick 2019 *{published data only}*

Rick O, Reuss-Borst M, Dauelsberg T, Hass H, Konig V, Caspari R, et al. Cognitive dysfunction and return to work in patients with breast cancer: Final results from the NeuroCog FX Study. *Oncology Research and Treatment* 2019;**42**:153-3.

Rick 2020 *{published data only}*

Rick O, Reuss-Borst M, Dauelsberg T, Hass H, Konig V, Caspari R, et al. Role of clinical, sociomedical and psychological factors on return to work of patients with breast cancer 6 months after rehabilitation. *Oncol. Res. Treat.* 2020;**43**(SUPPL 4):220.

Rick 2021 *{published data only}*

Rick O, Reus-Borst M, Dauelsberg T, Hass Holger G, Konig V, Caspari R, et al. [Role of clinical, sociomedical and psychological factors on return to work of patients with breast cancer 6 months after rehabilitation]. *Einfluss Klinischer, Sozialmedizinischer und Psychologischer Faktoren Auf die Berufliche Reintegration von Patientinnen Mit Brustkrebs 6 Monate Nach der Rehabilitation.* 2021;**60**(4):253-62. [DOI: 10.1055/a-1288-5824]

Rider 2021 *{published data only}*

Rider A, Bennett B, Williams R, Gillespie-Akar L, Gogate A. The relationship between employment status, work productivity and activity impairment (WPAI) and health-related quality of life (HRQoL) for patients (pts) with HR+/HER2-early stage breast cancer (BC). *Annals of Oncology* 2021;**32**:S430.

Roelen 2009 *{published data only}*

Roelen Corne AM, Koopmans Petra C, de Graaf Jan H, Balak Fulya, Groothoff Johan W. Sickness absence and return to work rates in women with breast cancer. *International Archives of Occupational and Environmental Health* 2009;**82**(4):543-6.

Roelen 2011a *{published data only}*

Roelen CA M, Koopmans PC, Schellart AJ M, van der Beek AJ. Resuming work after cancer: a prospective study of occupational register data. *Journal of Occupational Rehabilitation* 2011;**21**(3):431-40.

Roelen 2011b *{published data only}*

Roelen CA M, Koopmans PC, van Rhenen W, Groothoff JW, van der Klink JJ L, Bultmann U. Trends in return to work of breast cancer survivors. *Breast Cancer Research and Treatment* 2011;**128**(1):237-42.

Rosbjerg 2021 *{published data only}*

Rosbjerg R, Zachariae R, Hansen DG, Hoejris I, Duijts S, Gehr NL, et al. Physical activity, return to work self-efficacy, and work status among employees undergoing chemotherapy for cancer - a prospective study with 12months follow-up. *BMC Cancer* 2021;**21**(1):169. [DOI: 10.1186/s12885-021-07824-6]

Roth 2005 *{published data only}*

Roth RS, Lowery JC, Davis J, Wilkins EG. Quality of life and affective distress in women seeking immediate versus delayed breast reconstruction after mastectomy for breast cancer. *Plastic and Reconstructive Surgery* 2005;**116**(4):993-1002.

Rotstein 1989 *{published data only}*

Rotstein S, Nilsson B, Gustavson-Kadaka E, Andersson S. Long-term follow-up of sickness periods in breast cancer patients primarily treated with surgery and radiotherapy or surgery only. *Acta Oncologica (Stockholm, Sweden)* 1989;**28**(6):817-22.

Samuel 2020 *{published data only}*

Samuel Cleo A, Spencer Jennifer C, Rosenstein Donald L, Reeder-Hayes Katherine E, Manning Michelle L, Sellers Jean B, et al. Racial differences in employment and cost-management behaviors in patients with metastatic breast cancer. *Breast Cancer Research and Treatment* 2020;**179**(1):207-15.

Satariano 1996 *{published data only}*

Satariano WA, DeLorenze GN. The likelihood of returning to work after breast cancer. *Public Health Reports* 1996;**111**(3):236-41.

Schmidt 2019 *{published data only}*

Schmidt Martina E, Scherer S, Wiskemann J, Steindorf K. Return to work after breast cancer: The role of treatment-related side effects and potential impact on quality of life. *European Journal of Cancer Care* 2019;**28**(4):e13051.

Schwartzberg 2020 *{published data only}*

Schwartzberg LS, Navari RM, Ruddy KJ, LeBlanc TW, Clark-Snow RA, Wickham RS, et al. Work loss and activity

impairment due to duration of nausea and vomiting in patients with breast cancer receiving CINV prophylaxis. *Journal of Clinical Oncology* 2020;**38**(15):e24133. [DOI: 10.1200/JCO.2020.38.15_suppl.e24133]

Serletti 1997 *{published data only}*

Serletti JM, Moran SL. Free versus the pedicled TRAM flap: a cost comparison and outcome analysis. *Plastic and Reconstructive Surgery* 1997;**100**(6):1418-7.

Shankaran 2017 *{published data only}*

Shankaran V, Linden H, Steelquist J, Watabayashi K, Kreizenbeck K, Leahy T, et al. Development of a financial literacy course for patients with newly diagnosed cancer. *American Journal of Managed Care* 2017;**23**(3):S58-S64.

Shi 2011 *{published data only}*

Shi Q, Smith TG, Michonski JD, Stein KD, Kaw C, Cleel, et al. Symptom burden in cancer survivors 1 year after diagnosis. *Cancer* 2011;**117**(12):2779-90.

Short 2008 *{published data only}*

Short PF, Vasey JJ, Moran JR. Long-term effects of cancer survivorship on the employment of older workers. *Health Services Research* 2008;**43**(1):193-210.

Short 2009 *{published data only}*

Short PF, Bradley CJ, Yabroff KR. Employment status among cancer survivors [3]. *JAMA - Journal of the American Medical Association* 2009;**302**(1):33.

Singer 2014 *{published data only}*

Singer S, Meyer A, Wienholz S, Briest S, Brown A, Dietz A, et al. Early retirement in cancer patients with or without comorbid mental health conditions. *Cancer* 2014;**120**(14):2199-206.

Sjovall 2012 *{published data only}*

Sjovall K, Attner B, Englund M, Lithman T, Noreen D, Gunnars B, et al. Sickness absence among cancer patients in the pre-diagnostic and the post-diagnostic phases of five common forms of cancer. *Supportive Care in Cancer* 2012;**20**(4):741-7.

So 2022 *{published data only}*

So SC, Ng DW, Liao QY, Fielding R, Soong I, Chan KK, et al. Return to work and work productivity during the first year after cancer treatment. *Front. Psychol.* 2022;**12**(13):866346. [DOI: 10.3389/fpsyg.2022.866346]

Soderman 2019 *{published data only}*

Soderman Mirkka, Friberg E, Alex, Erson K, Wennman-Larsen A. Women's experiences of encounters with healthcare professionals' regarding work after breast-cancer surgery and associations with sickness absence: a 2-year follow-up cohort study. *Supportive Care in Cancer* 2019;**27**(4):1197-206.

Soderman 2019a *{published data only}*

Soderman M, Wennman-Larsen A, Alex, Erson K, Friberg E. Experiences of positive encounters with healthcare professionals among women on long-term sickness absence due to breast cancer or due to other diagnoses: a nationwide survey. *BMC Public Health* 2019;**19**(1):349.

Sorrentino 2018 *{published data only}*

Sorrentino L, Fissi S, Meaglia I, Bossi D, Caserini O, Mazzucchelli S, et al. One-step intraoperative radiotherapy optimizes conservative treatment of breast cancer with advantages in quality of life and work resumption. *Breast (Edinburgh, Scotland)* 2018;**39**:123-30.

Sowden 2014 *{published data only}*

Sowden M, Vacek P, Geller BM. The impact of cancer diagnosis on employment: is there a difference between rural and urban populations? *Journal of Cancer Survivorship* 2014;**8**(2):213-7.

Spencer 2020 *{published data only}*

Spencer Jennifer C, Rotter Jason S, Eberth Jan M, Zahnd Whitney E, Erpool Robin C, Ko Linda K, et al. Employment changes following breast cancer diagnosis: the effects of race and place. *Journal of the National Cancer Institute* 2020;**112**(6):647-50.

Steiner 2008 *{published data only}*

Steiner JF, Cavender TA, Nowels CT, Beaty BL, Bradley CJ, Fairclough DL, et al. The impact of physical and psychosocial factors on work characteristics after cancer. *Psycho-oncology* 2008;**17**(2):138-47. [DOI: 10.1002/pon.1204]

Stewart 2001 *{published data only}*

Stewart DE, Cheung AM, Duff S, Wong F, McQuestion M, Cheng T, et al. Long-term breast cancer survivors: confidentiality, disclosure, effects on work and insurance. *Psycho-oncology* 2001;**10**(3):259-63.

Strada 2006 *{published data only}*

Strada MR, Frascaroli M, Jedrychowska I, Innaurato C, Bernardo A, Palumbo R, et al. Breast cancer survivors and returning to work: Preliminary data from a sample of 131 patients in working age. *Annals of Oncology* 2006;**17**:XI7-XI7.

Strada 2008 *{published data only}*

Strada MR, Palumbo R, Innaurato C, Frascaroli M, Jedrychowska I, Albanese D, et al. Return to work after breast cancer: why not? Predictors risk factors and impact on quality of life in a prospective mono-centre research. *Annals of Oncology* 2008;**19**(8):85-5. [DOI: 10.1093/annonc/mdn505]

Stroppa 2011 *{published data only}*

Stroppa EM, Cavanna L, Ambroggi M, Di Nunzio C, Dallanegra L, Monfredo M. Returning to work after treatment for breast cancer. *Journal of Clinical Oncology* 2011;**29**(15):e11572. [WEBSITE: https://ovidsp.dc1.ovid.com/ovid-a/ovidweb.cgi]

Suur-Uski 2019 *{published data only}*

Suur-Uski J, Pekkala J, Blomgren J, Pietilainen O, Rahkonen O, Manty M. Occupational class differences in long-term sickness absence due to breast cancer during 2005-2013: a population-based study among Finnish women. *International Journal of Environmental Research and Public Health* 2019;**16**(18):3477. [DOI: 10.3390/ijerph16183477]

Tachi 2016 *{published data only}*

Tachi T, Teramachi H, Tanaka K, Asano S, Osawa T, Kawashima A, et al. The impact of side effects from outpatient

chemotherapy on presenteeism in breast cancer patients: a prospective analysis. *SpringerPlus* 2016;**5**:327.

Tangka 2021 *{published data only}*

Tangka F, Subramanian S, Jones M, Edwards P, Flanigan T, Kaganova J, et al. Insurance coverage, employment status, and financial wellbeing of young women diagnosed with breast cancer. *Cancer Research* 2021;**81**(4):PS7-45.

Taskila-Abrandt 2004 *{published data only}*

Taskila-Abrandt T, Martikainen R, Virtanen SV, Pukkala E, Hietanen P, Lindbohm ML. The impact of education and occupation on the employment status of cancer survivors. *European Journal of Cancer* 2004;**40**(16):2488-93.

Tevaarwerk 2010 *{published data only}*

Tevaarwerk AJ, Lee JW, Sesto MC, Cleel, CS, Wagner LI, et al. Predictors of employment outcomes in breast cancer (brca) patients: an analysis from E2Z02 (ecog's SOAPP study). *Cancer Research* 2010;**70**:P2-14-07.

Tevaarwerk 2013 *{published data only}*

Tevaarwerk AJ, Lee JW, Sesto ME, Buhr KA, Cleel, CS, et al. Employment outcomes among survivors of common cancers: the Symptom Outcomes and Practice Patterns (SOAPP) study. *Journal of Cancer Survivorship* 2013;**7**(2):191-202.

Tevaarwerk 2016 *{published data only}*

Tevaarwerk Amye J, Lee Ju-Whei, Terhaar Abigail, Sesto Mary E, Smith Mary Lou, Cleel, et al. Working after a metastatic cancer diagnosis: Factors affecting employment in the metastatic setting from ECOG-ACRIN's Symptom Outcomes and Practice Patterns study. *Cancer* 2016;**122**(3):438-46.

Tevaarwerk 2021 *{published data only}*

Tevaarwerk Amye J, Kwekkeboom Kris, Buhr Kevin A, Dennee Alex, Ra, Conkright William, et al. Results from a prospective longitudinal survey of employment and work outcomes in newly diagnosed cancer patients during and after curative-intent chemotherapy: A Wisconsin Oncology Network study. *Cancer* 2021;**127**(5):801-8.

Thandrayen 2021 *{published data only}*

Thandrayen J, Joshy G, Stubbs J, Bailey L, Butow P, Koczwara B, et al. Workforce participation in relation to cancer diagnosis, type and stage: Australian population-based study of 163,556 middle-aged people. *Journal of Cancer Survivorship* 2022;**16**(2):461-73. [DOI: 10.1007/s11764-021-01041-7]

Thielen 2015 *{published data only}*

Thielen K, Kolodziejczyk C, Andersen I, Heinesen E, Diderichsen F. Cancer stage, comorbidity, and socioeconomic differences in the effect of cancer on labour market participation: a Danish register-based follow-up study. *PloS One* 2015;**10**(6):e0128621.

Thorsen 2016 *{published data only}*

Thorsen L, Dahl AA, Nystad R, Kiserud CE, Geirdal AO, Smeland S. Baseline characteristics in female cancer patients with unimproved work status after an outpatient rehabilitation program and health changes during the intervention. *SpringerPlus* 2016;**5**(1):1009.

Throckmorton 2015 *{published data only}*

Throckmorton AD, Osian S, Scow J, Pruthi S, Hoskin T, Cha S, et al. Return to work after breast cancer. *Annals of Surgical Oncology* 2015;**22**:110-0.

Torp 2012 *{published data only}*

Torp S, Nielsen RA, Fossa SD, Gudbergsson SB, Dahl AA. Change in employment status of 5-year cancer survivors. *European Journal of Public Health* 2012;**23**(1):116-22.

Torp 2017 *{published data only}*

Torp S, Syse J, Paraponaris A, Gudbergsson S. Return to work among self-employed cancer survivors. *Journal of Cancer Survivorship* 2017;**11**(2):189-200.

Tseilikman 1977 *{published data only}*

Tseilikman EG, Ponomarev VA. [Work capacity of women after treatment for breast cancer]. *Trudosposobnost' Zhenshchin Posle Lecheniia Po Povodu Raka Molochnoi Zhelezy.* 1977;**23**(10):97-100.

Tunceli 2009 *{published data only}*

Tunceli K, Short PF, Moran JR, Tunceli O. Cancer survivorship, health insurance, and employment transitions among older workers. *Inquiry* 2009;**46**(1):17-32.

Urquhart 2022 *{published data only}*

Urquhart R, Scruton S, Kendell C. Understanding cancer survivors' needs and experiences returning to work post-treatment: a longitudinal qualitative study. *Curr. Oncol.* 2022;**29**(5):3013-25.

Varnier 2022 *{published data only}*

Varnier R, Moskal A, Dima AL, Bodelet C, Peron J, Lamort-Bouche M, et al. Return to work trajectories after early breast cancer diagnosis: A population-based cohort study in the French National Healthcare Insurance database. *Annals of Oncology* 2022;**33**(7):S1282.

Vayr 2020 *{published data only}*

Vayr F, Montastruc M, Savall F, Despas F, Judic E, Basso M, et al. Work adjustments and employment among breast cancer survivors: a French prospective study. *Supportive Care in Cancer* 2020;**28**(1):185-92.

Verrill 2017 *{published data only}*

Verrill M, Schmid P, Retzler J, Smith AB, Bottomley CJ, Dando S, et al. Work productivity in her2 positive breast cancer: a comparison of patients across stages of early and metastatic disease. *Value in Health* 2017;**20**(9):A454-A454.

Vidt 2022 *{published data only}*

Vidt ME, Heitzenrater J, Dodge D, Potochny J, Widders K, Paulishak M, et al. The role of physical arm function and demographic disparities in breast cancer survivors' ability to return to work. *Support. Care Cancer* 2022;**30**(12):10301-10. [DOI: 10.1007/s00520-022-07449-w]

White-Means 2019 *{published data only}*

White-Means SI, Osmani AR. Job market prospects of breast vs. Prostate cancer survivors in the US: a double hurdle model of ethnic disparities. *Journal of Family and Economic Issues* 2019;**40**(2):282-304.

Wolvers 2019 *{published data only}*

Wolvers MD J, Leensen MC J, Groeneveld IF, Frings-Dresen MH W, De Boer AG EM. Longitudinal associations between fatigue and perceived work ability in cancer survivors. *Journal of Occupational Rehabilitation* 2019;**29**(3):540-9.

Yang 2022 *{published data only}*

Yang Z, Chen W, Wu W, Lai C, Ho C, Wang C. Return to work and mortality in breast cancer survivors: a 11-year longitudinal study. *International Journal of Environmental Research and Public Health* 2022;**19**(21):Yang, Zhe-Yu. Division of Family Medicine, Department of Family and Community Medicine, Tri.

Yin 2017 *{published data only}*

Yin W, Horblyuk R, Perkins Julia J, Sison S, Smith G, Snider Julia T, et al. Association between breast cancer disease progression and workplace productivity in the united states. *Journal of Occupational and Environmental Medicine* 2017;**59**(2):198-204.

Yu 2012 *{published data only}*

Yu M, Ferrucci LM, McCorkle R, Ercolano E, Smith T, Stein KD, et al. Employment experience of cancer survivors 2 years post-diagnosis in the Study of Cancer Survivors-I. *Journal of Cancer Survivorship-Research and Practice* 2012;**6**(2):210-8.

Zanville 2016 *{published data only}*

Zanville Noah R, Nudelman Kelly NH, Smith Dori J, Von Ah Diane, McDonald Brenna C, Champion Victoria L, et al. Evaluating the impact of chemotherapy-induced peripheral neuropathy symptoms (CIPN-sx) on perceived ability to work in breast cancer survivors during the first year post-treatment. *Supportive Care in Cancer* 2016;**24**(11):4779-89.

Zheng 2016 *{published data only}*

Zheng Zhiyuan, Yabroff K Robin, Guy Gery P Jr, Han Xuesong, Li Chunyu, Banegas Matthew P, et al, Jemal Ahmedin. Annual medical expenditure and productivity loss among colorectal, female breast, and prostate cancer survivors in the united states. *Journal of the National Cancer Institute* 2016;**108**(5):djv382. [DOI: 10.1093/jnci/djv382]

References to studies awaiting assessment

Camejo-Martinez 2022 *{published data only}*

Camejo-Martinez N, Castillo-Leska C, Hernandez-Ibero AL, Artagaveytia-Coppola NA, Amarillo-Hernandez DL, Krygier-Waltier GD. [Returning to work after diagnosis and treatment of breast cancer]. *Reinsercion Laboral Posterior a Diagnostico y Tratamiento del Cancer de Mama* 2022;**60**(5):487-94.

Additional references

Allemani 2018

Allemani C, Matsuda T, Di Carlo V, Harewood R, Matz M, Niksic M, et al. Global surveillance of trends in cancer survival 2000-14 (CONCORD-3): analysis of individual records for 37?513?025 patients diagnosed with one of 18 cancers from 322 population-based registries in 71 countries. *Lancet* 2018;**391**(10125):1023-75. [DOI: 10.1016/S0140-6736(17)33326-3]

Arnold 2022

Arnold M, Morgan E, Rumgay H, Mafra A, Singh D, Laversanne M, et al. Current and future burden of breast cancer: global statistics for 2020 and 2040. *Breast (Edinburgh, Scotland)* 2022;**66**:15-23. [DOI: 10.1016/j.breast.2022.08.010]

Blaeser 2023

Blaeser AM, Mojica ES, Mannino BJ, Youm T. Return to work after primary hip arthroscopy: a systematic review and meta-analysis. *American Journal of Sports Medicine* 2023;**51**(5):1340-6. [DOI: 10.1177/03635465211064271]

Bray 2018

Bray F, Ferlay J, Soerjomataram I, Siegel RL, Torre LA, Jemal A. Global cancer statistics 2018: GLOBOCAN estimates of incidence and mortality worldwide for 36 cancers in 185 countries. *CA* 2018;**68**(6):394-424. [DOI: 10.3322/caac.21492]

De Boer 2008

De Boer AG, Verbeek JH, Spelten ER, Uitterhoeve AL, Ansink AC, De Reijke TM, et al. Work ability and return-to-work in cancer patients. *British Journal of Cancer* 2008;**98**(8):1342-7. [DOI: 10.1038/sj.bjc.6604302]

De Boer 2009

De Boer AG, Taskila T, Ojajarvi A, Van Dijk FJ, Verbeek JH. Cancer survivors and unemployment: a meta-analysis and meta-regression. *Journal of the American Medical Association* 2009;**301**(7):753-62. [DOI: 10.1001/jama.2009.187]

De Boer 2015

De Boer AG, Taskila TK, Tamminga SJ, Feuerstein M, Frings-Dresen MH, Verbeek JH. Interventions to enhance return-to-work for cancer patients. *Cochrane Database of Systematic Reviews* 2015, Issue 9. Art. No: CD007569. [DOI: 10.1002/14651858.CD007569.pub3]

De Wit 2018

De Wit M, Wind H, Hulshof CT, Frings-Dresen MH. Person-related factors associated with work participation in employees with health problems: a systematic review. *International Archives of Occupational and Environmental Health* 2018;**91**:497-512. [DOI: 10.1007/s00420-018-1308-5]

Duijts 2017

Duijts SF, Kieffer JM, Van Muijen P, Van der Beek AJ. Sustained employability and health-related quality of life in cancer survivors up to four years after diagnosis. *Acta Oncologica* 2017;**56**(2):174-82. [DOI: 10.1080/0284186X.2016.1266083]

European Network of Cancer Registries (ENCR) 2021

European Network of Cancer Registries (ENCR). www.encr.eu/ (accessed prior to 8 April 2025).

Eurostat 2021

Eurostat. www.ec.europa.eu/eurostat (accessed prior to 8 April 2025).

Feuerstein 2010

Feuerstein M, Todd BL, Moskowitz MC, Bruns GL, Stoler MR, Nassif T, et al. Work in cancer survivors: a model for practice and research. *Journal of Cancer Survivorship* 2010;**4**(4):415-37. [DOI: 10.1007/s11764-010-0154-6]

Foroutan 2020

Foroutan F, Guyatt G, Zuk V, Vandvik PO, Alba AC, Mustafa R, et al. GRADE Guidelines 28: use of GRADE for the assessment of evidence about prognostic factors: rating certainty in identification of groups of patients with different absolute risks. *Journal of Clinical Epidemiology* 2020;**121**:62-70. [DOI: 10.1016/j.jclinepi.2019.12.023]

Greidanus 2021

Greidanus MA, De Rijk AE, De Boer AG, Bos ME, Plaisier PW, Smeenk RM, et al. A randomised feasibility trial of an employer-based intervention for enhancing successful return to work of cancer survivors (MiLES intervention). *BMC Public Health* 2021;**21**:1433. [DOI: 10.1186/s12889-021-11357-9]

Hayden 2006

Hayden JA, Cote P, Bombardier C. Evaluation of the quality of prognosis studies in systematic reviews. *Annals of Internal Medicine* 2006;**144**(6):427-37. [DOI: 10.7326/0003-4819-144-6-200603210-00010]

Hayden 2013

Hayden JA, Van der Windt DA, Cartwright JL, Cote P, Bombardier C. Assessing bias in studies of prognostic factors. *Annals of Internal Medicine* 2013;**158**(4):280-6. [DOI: 10.7326/0003-4819-158-4-201302190-00009]

Higgins 2003

Higgins JP, Thompson SG, Deeks JJ, Altman DG. Measuring inconsistency in meta-analyses. *BMJ (Clinical Research Ed.)* 2003;**327**:557-60. [DOI: 10.1136/bmj.327.7414.557]

Higgins 2022

Higgins JP, Thomas J, Chandler J, Cumpston M, Li T, Page MJ, et al (editors). Cochrane Handbook for Systematic Reviews of Interventions Version 6.3 (updated February 2022), Cochrane 2022. Available from www.training.cochrane.org/handbook/archive/v6.3.

Islam 2014

Islam T, Dahlui M, Majid HA, Nahar AM, Taib NA, Su TT. Factors associated with return to work of breast cancer survivors: a systematic review. *BMC Public Health* 2014;**14**(Suppl 3):S8. [DOI: 10.1186/1471-2458-14-S3-S8]

Kang 2022

Kang D, Bae KR, Kim HY, Ahn Y, Kim N, Shim Y, et al. Changes in working status after cancer diagnosis and socio-demographic, clinical, work-related, and psychological factors associated with it. *BMC Cancer* 2022;**22**:917. [DOI: 10.1186/s12885-022-10013-8]

Kleban 2014

Kleban R. Metastasis, the new "C word". *Social Work in Health Care* 2014;**53**(1):5-10. [DOI: 10.1080/00981389.2013.820678]

Lagerveld 2010

Lagerveld SE, Blonk RW, Brenninkmeijer V, Schaufeli WB. Return to work among employees with mental health problems: development and validation of a self-efficacy questionnaire. *Work and Stress* 2010;**24**(4):359-75. [DOI: 10.1080/02678373.2010.532644]

Li 2023

Li JM, Su XQ, Xu XP, Xue P, Guo YJ. Influencing factors analysis of adaptability of cancer patients to return-to-work. *Supportive Care in Cancer* 2023;**31**(5):302. [DOI: 10.1007/s00520-023-07768-6]

Moher 2009

Moher D, Liberati A, Tetzlaff J, Altman DG. Preferred reporting items for systematic reviews and meta-analyses: the PRISMA statement. *PLoS Medicine* 2009;**6**(7):e1000097. [DOI: 10.1371/journal.pmed.1000097]

Netherlands Cancer Registery 2021

Netherlands Cancer Registry [Integraal kankercentrum Nederland]. www. iknl.nl/nkr-cijfers.nl (accessed prior to 8 April 2025).

Netherlands Statistics 2021

Netherlands Statistics [Centraal Bureau voor de Statistiek]. www.cbs.nl (accessed prior to 8 April 2025).

OECD 2023

OECD. OECD Employment Outlook. https://www.oecd-ilibrary.org/employment/oecd-employment-outlook_19991266 (accessed prior to 8 April 2025);–(–):–. [DOI: https://doi.org/10.1787/19991266]

Orange 2024

Orange C, Lanhers C, Coll G, Coste N, Dutheil F, Hauret I, et al. Determinants of return to work after a stroke: a systematic review and meta-analysis. *Archives of Physical Medicine and Rehabilitation* 2024;**105**(2):359-68. [DOI: 10.1016/j.apmr.2023.08.027]

Ouzzani 2016

Ouzzani M, Hammady H, Fedorowicz Z, Elmagarmid A. Rayyan - a web and mobile app for systematic reviews. *Systematic Reviews* 2016;**5**:210. [DOI: 10.1186/s13643-016-0384-4]

Ravinskaya 2022

Ravinskaya M, Verbeek JH, Langendam M, Daams JG, Hulshof CT, Madan I, et al. Extensive variability of work participation outcomes measured in randomized controlled

trials: a systematic review. *Journal of Clinical Epidemiology* 2022;**142**:60-99. [DOI: 10.1016/j.jclinepi.2021.10.013]

Ravinskaya 2023

Ravinskaya M, Verbeek JH, Langendam M, Madan I, Verstappen SM, Kunz R, et al. Which outcomes should always be measured in intervention studies for improving work participation for people with a health problem? An international multistakeholder Delphi study to develop a core outcome set for work participation (COS for work). *BMJ Open* 2023;**13**(2):e069174. [DOI: 10.1136/bmjopen-2022-069174]

RevMan Web 2025 [Computer program]

Review Manager Web (RevMan Web). Version 8.21.0. The Cochrane Collaboration, 2025. revman.cochrane.org.

Riley 2019

Riley RD, Moons KG, Snell KI, Ensor J, Hooft L, Altman DG, et al. A guide to systematic review and meta-analysis of prognostic factor studies. *BMJ (Clinical Research Ed.)* 2019;**364**:k4597. [DOI: 10.1136/bmj.k4597]

Roelen 2011

Roelen CA, Koopmans PC, Van Rhenen W, Groothoff JW, Van Der Klink JJ, Bultmann U. Trends in return to work of breast cancer survivors. *Breast Cancer Research and Treatment* 2011;**128**:237-42. [DOI: 10.1007/s10549-010-1330-0]

Schünemann 2013

Schünemann H, Brożek J, Guyatt G, Oxman A, editors. GRADE handbook for grading quality of evidence and strength of recommendations. Updated October 2013. The GRADE Working Group, 2013. Available from guidelinedevelopment.org/handbook 2013.

Smets 1995

Smets EM, Garssen B, Bonke B, De Haes JC. The multidimensional fatigue inventory (MFI) psychometric qualities of an instrument to assess fatigue. *Journal of Psychosomatic Research* 1995;**39**(3):315-25. [DOI: 10.1016/0022-3999(94)00125-o]

Spelten 2002

Spelten ER, Sprangers MA, Verbeek JH. Factors reported to influence the return to work of cancer survivors: a literature review. *Psycho-oncology* 2002;**11**(2):124-31. [DOI: 10.1002/pon.585]

Su 2018

Su TT, Azzani M, Tan FL, Loh SY. Breast cancer survivors: return to work and wage loss in selected hospitals in Malaysia. *Supportive Care in Cancer* 2018;**26**:1616-24. [DOI: 10.1007/s00520-017-3987-y]

Su 2019

Su M, Zhang N, Cai Y, Wang J, Anderson R, Yao N, et al. Work and income changes after cancer in rural China: a cross-sectional survey. *Cancer Medicine* 2019;**8**(18):7859-68. [DOI: 10.1002/cam4.2627]

Sun 2017

Sun Y, Shigaki CL, Armer JM. Return to work among breast cancer survivors: a literature review. *Supportive Care in Cancer* 2017;**25**:709-18. [DOI: 10.1007/s00520-016-3446-1]

Tamminga 2012

Tamminga SJ, De Boer AG, Verbeek JH, Frings-Dresen MH. Breast cancer survivors' views of factors that influence the return-to-work process - a qualitative study. *Scandinavian Journal of Work, Environment & Health* 2012;**38**(2):144-54. [DOI: 10.5271/sjweh.3199]

Tamminga 2013

Tamminga SJ, Verbeek JH, Bos MM, Fons G, Kitzen JJ, Plaisier PW, et al. Effectiveness of a hospital-based work support intervention for female cancer patients - a multi-centre randomised controlled trial. *PloS One* 2013;**8**(5):e63271. [DOI: 10.1371/journal.pone.0063271]

Tamminga 2022

Tamminga SJ, De Wind A, Greidanus MA, Coenen P, Friberg E, Oldenburg H, et al. Prognostic factors for return to work in breast cancer survivors. *Cochrane Database of Systematic Reviews* 2022, Issue 2. Art. No: CD015124. [DOI: 10.1002/14651858.CD015124]

Tierney 2022

Tierney JF, Stewart LA, Clarke M. Chapter 26: Individual participant data In: Higgins JP, Thomas J, Chandler J, Cumpston M, Li T, Page MJ, et al (editors). Cochrane Handbook for Systematic Reviews of Interventions Version 6.3 (updated February 2022), Cochrane 2022. Available from www.training.cochrane.org/handbook/archive/v6.3.

Van der Borden 2019

Van der Borden CL, Stoffers S, Lips EH, Wesseling J. Avoiding overtreatment of ductal carcinoma in situ. *Trends in Cancer* 2019;**5**(7):391-3. [DOI: 10.1016/j.trecan.2019.05.005]

Wang 2018

Wang L, Hong BY, Kennedy SA, Chang Y, Hong CJ, Craigie S, et al. Predictors of unemployment after breast cancer surgery: a systematic review and meta-analysis of observational studies. *Journal of Clinical Oncology* 2018;**36**(18):1868-79. [DOI: 10.1200/JCO.2017.77.3663]

World Health Organization 2001

World Health Organisation (WHO). International Classification of Functioning, Disability and Health (ICF). Geneva: World Health Organisation, 2001.

World Health Organization 2002

World Health Organization. Towards a Common Language for Functioning, Disability and Health ICF. Geneva: World Health Organization, 2002.

Zaman 2017

Zaman AC, Bruinvels DJ, De Boer AG, Frings-Dresen MH. Supporting cancer patients with work-related problems through an oncological occupational physician: a feasibility

study. *European Journal of Cancer Care* 2017;**26**(5):e12378. [DOI: 10.1111/ecc.12378]

Zomkowski 2018

Zomkowski K, Cruz de Souza B, Pinheiro da Silva F, Moreira GM, De Souza Cunha N, Sperandio FF. Physical symptoms and working performance in female breast cancer survivors: a systematic review. *Disability and Rehabilitation* 2018;**40**(13):1485-93. [DOI: 10.1080/09638288.2017.1300950]

CHARACTERISTICS OF STUDIES

Characteristics of included studies *[ordered by study ID]*

Blinder 2012

Study characteristics	
Methods	Study design (as judged by the reviewers): prospective cohort study Prognostic factor(s) assessed around breast cancer diagnosis Data collection period: 2004/2005
Participants	Inclusion criteria: • Participants were 6 months post-diagnosis of localized breast cancer; • Undergoing or had undergone treatment with curative intent; • Cognitively able to participate; • English- and/or Spanish-speaking women • Working at diagnosis. Exclusion criteria: • Undergoing treatment for another cancer Additional selection criteria applicable to this review: none Sample size (signed informed consent): 921 Sample size (included in the analysis): 290
Prognostic factors	Prognostic factors included in this review (definition, assessment): • Age (NR, self-report); • Ethnicity (NR, self-report); • Educational level (no high school diploma, completed high school and/or some college, and completed; college and/or a postgraduate degree, self-report); • Job category (US Census Bureau Index of Occupations, collapsed into 4 categories (operator/fabricator, professional/manager, service, and technical/sales/administrative), self-report); • Partner status (married/partnered versus not married/partnered, self-report); • Children living at home (children ≤ 17 years old living at home (0/1/2+, self-report); • Cancer stage (DCIS, I, II, III, self-report); • Mastectomy (yes vs no, self-report); • Breast reconstruction (yes vs no, self-report); • Axillary lymph node dissection (yes vs no, self-report); • Chemotherapy (yes vs no, self-report); • Radiotherapy (yes vs no, self-report); • Hormone treatment (yes vs no, self-report); • Comorbidity (Charlson Comorbidity Index as modified for patient report); • Income (annual household income, self-report).

Blinder 2012 *(Continued)*

	Prognostic factors measured in the included study but not included in this review (reason for not included): • US-born (ethnicity was already included); • Acculturation score (not included in our variable framework); • People > 65 y in house (not included in our variable framework); • Social support for medical visits (not included in our variable framework); • Social support for daily tasks (not included in our variable framework); • Physical functioning (not able to calculate risk association); • Emotional well-being (not able to calculate risk association); • Role function, physical (not able to calculate risk association); • Role function, emotional (not able to calculate risk association); • Social functioning (not able to calculate risk association); • Pain (not able to calculate risk association); • Energy/fatigue(not able to calculate risk association); • General health perceptions (not able to calculate risk association); • Physical component summary (not able to calculate risk association); • Mental component summary (not able to calculate risk association).
Outcomes	Definition: We defined the primary outcome as employment that was either part-time or full time. Assessment: Self-report Follow-up period: 6, and 18 months N (%) who returned to work at the longest follow-up: 162 (56%)
Statistical approach	Multivariate logistic regression Method for selection of prognostic factors for inclusion in multivariable modeling: A multivariate logistic regression including variables that were statistically significant in the univariate analysis (i.e. 2-sided alpha levels with $P < 0.05$) was then conducted to identify independent predictors of employment status at 18 months.
Country	USA
Notes	Additional information was sought from the authors. The information kindly provided by the corresponding author helped us to understand that all the papers belonged to the same dataset and are thus included under the same study ID. Risk of bias was assessed with the Quality In Prognosis Studies (QUIPS) tool so all risk of bias ratings of 'unclear' risk of bias should be read as 'moderate' risk of bias.

Item	Authors' judgement	Support for judgement
Study Participation	Unclear	The participation of eligible individuals is unknown, and it is unknown to what extent the sample represents the population of interest on key characteristics (i.e. cancer stage, income, type of surgery).
Study Attrition	No	The proportion of the study sample completing the study and providing outcome data is ≤ 75%, and it is unknown whether this loss to follow-up is associated with key characteristics (i.e. cancer stage, income, type of surgery).
Prognostic Factor Measurement	Yes	PFs described adequately and the proportion of the study sample that completed data for PFs is > 75%

Blinder 2012 *(Continued)*

Outcome Measurement	Yes	An adequate definition of the outcome is provided.
Study Confounding	Yes	Adjusted analyses have accounted for key characteristics (i.e. cancer stage, income, type of surgery).
Statistical Analysis and Reporting	No	There was selective reporting of results. The strategy for model building was not sufficiently presented to assess the adequacy of the analysis.

Bouknight 2006

Study characteristics	
Methods	Study design (as judged by the reviewers): Prospective cohort study Prognostic factor(s) assessed around breast cancer diagnosis Data collection period: 2001-2003
Participants	Inclusion criteria: • Employed; • English-speaking women; • Ages 30 to 64 years; • With a first, primary diagnosis of breast cancer; • Working 3 months before their breast cancer diagnosis. Exclusion criteria: • A previous cancer; • Lived outside of Wayne, Macomb, and Oakland counties. Additional selection criteria applicable to this review: non Sample size (signed informed consent): 443 Sample size (included in the analysis): Univariate 416; multivariate 404
Prognostic factors	Prognostic factors included in this review (definition, assessment): • Ethnicity (white vs black, self-report); • Educational level (No HS diploma, HS diploma, some college, college degree, self-report); • Partner status (married, div, sep, wid, never married, self-report); • Children living at home (< 18 yes vs no, self-report); • General Health (5-point Likert Scale, self-report); • Comorbidity (Modified Charlson index, self-report); • Cancer stage (in situ, local, regional/distant, unknown, registry, patient reports); • Mastectomy (yes vs no, registry, patient reports); • Radiotherapy (yes vs no, registry, patient reports); • Chemotherapy (yes vs no, registry, patient reports); • History of sickness absence (yes vs no, self-report); • Job category (white collar vs blue collar, self-report); • Age (NR, self-report); • Income (household income, self-report). Prognostic factors measured in the included study but not included in this review (reason for not included):

Bouknight 2006 *(Continued)*

- Full-time employee (not measured at the appropriate measurement moment);
- Self-employed (not measured at the appropriate measurement moment);
- Health insurance (not included in our variable framework);
- High job involvement (not measured at the appropriate measurement moment);
- Heavy lifting (not measured at the appropriate measurement moment);
- Data analysis (not measured at the appropriate measurement moment);
- Employer accommodation (not measured at the appropriate measurement moment);
- Cancer discrimination (not included in our variable framework).

Outcomes	Definition: Are you currently working? Assessment: Self-report Follow-up period: 12, 18 months N (%) who returned to work at the longest follow-up: 337 (83%)
Statistical approach	t tests for continuous variables and 2 tests for categoric variables in logistic regression analyses Method for selection of prognostic factors for inclusion in multivariable modeling: Univariate analyses included t tests for continuous variables and 2 tests for categoric variables. Variables with a statistically significant difference of $P \leq 0.05$ in the univariate analysis were included in the multivariate logistic regression analysis, and some demographic and treatment variables were included as control variables. For the multivariate analysis, clinical variables included self-reported health status (dichotomized as poor or fair health vs good, very good, or excellent health), mastectomy (yes vs no), receipt of radiation therapy, receipt of chemotherapy, and cancer stage. There were only nine patients with metastatic breast cancer, which were too few to allow for separate statistical analysis of distant stage. Thus, regional and distant stages were combined. With return to work as the dependent variable, we used logistic regression to identify independent variables associated with return to work 12 and 18 months after a breast cancer diagnosis.
Country	USA
Notes	Additional information was sought from the authors. The information kindly provided by the corresponding author helped us to understand that both papers belonged to the same dataset and are thus included under the same study ID. Risk of bias was assessed with the Quality In Prognosis Studies (QUIPS) tool so all risk of bias ratings of 'unclear' risk of bias should be read as 'moderate' risk of bias.

Item	Authors' judgement	Support for judgement
Study Participation	Yes	The participation of eligible individuals is above our pre-defined cut-off point (i.e. 84%), but it is unknown to what extent the sample represents the population of interest on key characteristics (i.e. cancer stage, income, type of surgery).
Study Attrition	Yes	It is unknown whether there are important differences between key characteristics (i.e. cancer stage, income, type of surgery) in participants who completed the study and those who did not; however, loss to follow-up is below our pre-defined cut-off point (i.e. 94%).
Prognostic Factor Measurement	Yes	PFs described adequately and the proportion of the study sample that completed data for PFs is > 75%
Outcome Measurement	Yes	Adequate definition of the outcome is provided.

Bouknight 2006 *(Continued)*

Study Confounding	Yes	Adjusted analyses have accounted for key characteristics (i.e. cancer stage, income, type of surgery).
Statistical Analysis and Reporting	Yes	Statistical approach seems appropriate for the design of the study. The strategy for model building seems sufficiently presented to assess the adequacy of the analysis. No indication of selective reporting

Bradley 2007

Study characteristics	
Methods	Study design (as judged by the reviewers): Prospective cohort Prognostic factor(s) assessed around breast cancer diagnosis Data collection period: 2001-2002
Participants	Inclusion criteria: • Women newly diagnosed with breast cancer; • Age range from 30–64; • English-speaking; • Women who were married and who were employed in the period just before diagnosis with cancer; • Who were either insured through their own employer or through their spouse's employer. Exclusion criteria: None Additional selection criteria applicable to this review: NA Sample size (signed informed consent): 201 Sample size (included in the analysis): 201
Prognostic factors	Prognostic factors included in this review (definition, assessment): • Breast cancer stage (regional vs distant, cancer registry) Prognostic factors measured in the included study but not included in this review (reason for not included): • Employment-contingent health insurance (not included in our variable framework)
Outcomes	Definition: The study outcomes are employment and weekly hours worked following diagnosis, in both cases measured as changes relative to a pre-diagnosis baseline. Employment is defined two ways. First, employment is defined as working for pay or profit. Alternatively, it is defined to also include having a job at which the subject is not currently working. The latter option allows for situations such as a leave of absence under the provisions of FMLA or temporary disability due to cancer and its treatment – cases in which employees remain attached to their job and may not disrupt health insurance benefits during their leave. Assessment: Interview, cancer registry Follow-up period: 6, 12, 18 months N (%) who returned to work at the longest follow-up: 169 (84%)
Statistical approach	Linear probability models predicting employment

Bradley 2007 *(Continued)*

	The transition from employment to non-employment and the percentage change in weekly hours worked are modeled as functions of the source of health insurance prior to diagnosis (either ECHI or spouse insurance in our baseline specification, with INS an indicator of having one form of insurance or the other), breast cancer stage (BCS), other exogenous variables (the vector of these other variables and BCS is denoted X), and unobserved influences (ε).
Country	USA
Notes	Risk of bias was assessed with the Quality In Prognosis Studies (QUIPS) tool so all risk of bias ratings of 'unclear' risk of bias should be read as 'moderate' risk of bias.

Item	Authors' judgement	Support for judgement
Study Participation	Yes	The participation of eligible individuals is above our pre-defined cut-off point (i.e. 80%) but it is unknown to what extent the sample represents the population of interest on key characteristics (i.e. cancer stage, income, type of surgery).
Study Attrition	Yes	It is unknown whether there are important differences between key characteristics (i.e. cancer stage, income, type of surgery) in participants who completed the study and those who did not, however loss to follow-up is below our pre-defined cut-off point (201/242 (83%)).
Prognostic Factor Measurement	Yes	PFs described adequately and the proportion of the study sample that completed data for PFs is > 75%.
Outcome Measurement	Yes	Adequate definition of the outcome is provided.
Study Confounding	No	The study has not accounted for key characteristics: income and type of surgery.
Statistical Analysis and Reporting	Yes	Statistical approach seems appropriate for the design of the study. The strategy for model building seems sufficiently presented to assess the adequacy of the analysis. No indication of selective reporting

Bradley 2013

Study characteristics	
Methods	Study design (as judged by the reviewers): Prospective cohort Prognostic factor(s) assessed around breast cancer diagnosis Data collection period: 2007-2011
Participants	Inclusion criteria: • Married; • Between ages 21 and 64 years at the time of diagnosis; • Employed at diagnosis; • Insured either through their own employer or through a spouse's employer (and not explicitly enrolled in insurance from both sources); • Subjects had to be without metastatic disease; and

Bradley 2013 *(Continued)*

	• Within two months of initiating chemotherapy and/or radiation (or for the few cases of women who did not receive these treatments, within two months following surgery). Exclusion criteria: • NR Additional selection criteria applicable to this review: • NA Sample size (signed informed consent): 496 Sample size (included in the analysis): 455
Prognostic factors	Prognostic factors included in this review (definition, assessment): • Cancer stage (ductal carcinoma in situ (DCIS or stage 0), stage I (tumor < 2 cm and no lymph node involvement), stage II (tumor < 2 cm and lymph node involvement or tumor < 5 cm without lymph node involvement), and stage III (cancer present in the axillary lymph nodes and chest wall). Stage IV is metastatic cancer, medical record). Prognostic factors measured in the included study but not included in this review (reason for not included): • Employment-contingent health insurance (not included in our variable framework)
Outcomes	Definition: We defined employment status as a binary variable that equals one if a woman reports that she worked for pay one or more hours per week. Assessment: Interview, cancer registry Follow-up period: 2 and 9 months N (%) who returned to work at the longest follow-up: At the two- and nine-month interviews, the percentages of women employed exceeded 80%.
Statistical approach	Linear probability models predicting employment: The transition from employment to non-employment and the percentage change in weekly hours worked are modeled as functions of the source of health insurance prior to diagnosis (either ECHI or spouse insurance in our baseline specification, with INS an indicator of having one form of insurance or the other), breast cancer stage (BCS), other exogenous variables (the vector of these other variables and BCS is denoted X), and unobserved influences (ε).
Country	USA
Notes	Risk of bias was assessed with the Quality In Prognosis Studies (QUIPS) tool so all risk of bias ratings of 'unclear' risk of bias should be read as 'moderate' risk of bias.

Item	Authors' judgement	Support for judgement
Study Participation	Yes	The participation of eligible individuals is above our pre-defined cut-off point (i.e. 80%) but it is unknown to what extent the sample represents the population of interest in key characteristics (i.e. cancer stage, income, type of surgery).

Bradley 2013 *(Continued)*

Study Attrition	Yes	Participants who did not complete the study were more often diagnosed with advanced disease compared to those who did not; however, loss to follow-up is below our pre-defined cut-off point (i.e. 91%).
Prognostic Factor Measurement	Yes	PFs described adequately and the proportion of the study sample that completed data for PFs is > 75%.
Outcome Measurement	Yes	Adequate definition of the outcome is provided.
Study Confounding	Yes	Adjusted analyses have accounted for key characteristics (i.e. cancer stage, income, type of surgery).
Statistical Analysis and Reporting	Yes	Statistical approach seems appropriate for the design of the study. The strategy for model building seems sufficiently presented to assess the adequacy of the analysis. No indication of selective reporting

Bradley 2014

Study characteristics	
Methods	Study design (as judged by the reviewers): Prospective cohort study Prognostic factor(s) assessed around breast cancer diagnosis Data collection period: 2007-2011
Participants	Inclusion criteria: • Women were between the age of 21 and 64 years; • Women were insured either through their employer or through a spouse's employer; • Subjects had to be without metastatic disease; • Within 2 months following surgery or initiating chemotherapy and/or radiation. Exclusion criteria: • None Additional selection criteria applicable to this review • NA Sample size (signed informed consent): 625 Sample size (included in the analysis): 548
Prognostic factors	Prognostic factors included in this review (definition, assessment): • Ethnicity (non-Hispanic white vs African-American, self-report); • Partner status (unmarried vs married, self-report); • Educational level (high school or less, some college or associate's degree, advanced degree, self-report) • Income (annual income, self-report); • Children living at home (< 18 yes vs no, self-report); • Age (NR, self-report); • Breast cancer stage (0, I, II, III/IV, medical record); • Working hours (weekly hours worked, self-report); • Job category/job content (blue collar vs white collar, self-report);

Bradley 2014 *(Continued)*

	• Physically demanding work (job task questions asked if the woman agreed with statements such as "My job involves a lot of physical effort": for physical effort, lifting heavy loads, stooping, kneeling, crouching, intense concentration/attention, data analysis, keeping up with the pace set by others, learning new things, and whether the job requires good eyesight, self-report). Prognostic factors measured in the included study but not included in this review (reason for not included): • Treatment (not included in our variable framework); • Job satisfaction score (not included in our variable framework); • Availability of paid sick leave (not included in our variable framework); • Firm type (not included in our variable framework); • Firm size (not included in our variable framework); • Hours spent per day sitting (not included in our variable framework).
Outcomes	Definition: We defined employment status as a binary variable that is equal to one if a woman reported that she worked for one or more hours for pay. Assessment: Interview, medical record Follow-up period: 9 months N(%) who returned to work at the longest follow-up: 482 (88%)
Statistical approach	Employment was estimated using logistic regression. Odd ratios (OR) and 95% confidence intervals (CI) were reported.
Country	USA
Notes	Risk of bias was assessed with the Quality In Prognosis Studies (QUIPS) tool so all risk of bias ratings of 'unclear' risk of bias should be read as 'moderate' risk of bias.

Item	Authors' judgement	Support for judgement
Study Participation	Unclear	The participation of eligible individuals is unknown and it is unknown to what extent the sample represents the population of interest on key characteristics (i.e. cancer stage, income, type of surgery).
Study Attrition	Yes	It is unknown whether there are important differences between key characteristics (i.e. cancer stage, income, type of surgery) and outcomes in participants who completed the study and those who did not; however, loss to follow-up is below our pre-defined cut-off point (i.e. 80-95%).
Prognostic Factor Measurement	Yes	PFs described adequately and the proportion of the study sample that completed data for PFs is > 75%.
Outcome Measurement	Yes	Adequate definition of the outcome is provided.
Study Confounding	Yes	Adjusted analyses have accounted for key characteristics (i.e. cancer stage, income, type of surgery).
Statistical Analysis and Reporting	No	There is selective reporting of results. The strategy for model building is not sufficiently presented to assess the adequacy of the analysis.

Cooper 2013

Study characteristics	
Methods	Study design (as judged by the reviewers): Prospective cohort study Prognostic factor(s) assessed at the end of adjuvant cancer treatment Data collection period: NR
Participants	Inclusion criteria: • Patients were eligible for inclusion if aged over 18; • Employed at the time of diagnosis; • Had completed treatment; • Were able to complete a questionnaire in English. Exclusion criteria: • Patients with metastatic cancer were excluded. Additional selection criteria applicable to this review: None Sample size (signed informed consent): 103 Sample size (included in the analysis): 89
Prognostic factors	Prognostic factors included in this review (definition, assessment): • Educational level (NR, self-report); • Working hours (full-time vs part-time, self-report); • Fatigue (EORTC QLQ-C30, symptom scale fatigue, self-report). Prognostic factors measured in the included study but not included in this review (reason for not included): • Illness perceptions (not included in our variable framework); • Illness perceptions in relation to work (not included in our variable framework).
Outcomes	Definition: 'Returned to work' was defined as return to paid employment, whether a different job, reduced hours, full-time or a reduced salary. Assessment: Patients were asked to recall the precise date of RTW at the sixth month or 12th month follow-up interview. Follow-up period: 12 months N(%) who returned to work at the longest follow-up: NR
Statistical approach	Cox regression analyzes: Method for selection of prognostic factors for inclusion in multivariable modeling: Variables were entered singly (univariately) into the first Cox regression to identify independent psychological, sociodemographic, work-related and medical variables related to delay in RTW. These variables (excluding treatment type) were then included as covariates in a multivariate Cox regression model using forward stepwise procedure. Significant variables were entered into a final Cox regression model (Block 2, forward stepwise procedure) with adjustment for treatment type, where this was identified univariately.

Cooper 2013 *(Continued)*

Country	UK
Notes	Risk of bias was assessed with the Quality In Prognosis Studies (QUIPS) tool so all risk of bias ratings of 'unclear' risk of bias should be read as 'moderate' risk of bias.

Item	Authors' judgement	Support for judgement
Study Participation	No	The participation of eligible individuals is ≤ 70% (i.e. 63%) and it is unknown to what extent the sample represents the population of interest on key characteristics (i.e. cancer stage, income, type of surgery).
Study Attrition	Yes	It is unknown whether there are important differences between key characteristics (i.e. cancer stage, income, type of surgery) in participants who completed the study and those who did not; however, loss to follow-up is below our pre-defined cut-off point but not reported seperately for breast cancer (loss to follow-up between 0-11%).
Prognostic Factor Measurement	Yes	The proportion of the study sample that completed data for PFs is unknown but it is assumed that it is 100%.
Outcome Measurement	Yes	Adequate definition of the outcome is provided.
Study Confounding	No	Important potential confounders are not accounted for in the analysis.
Statistical Analysis and Reporting	No	There was selective reporting of results.

Di Meglio 2020

Study characteristics	
Methods	Study design (as judged by the reviewers): Prospective cohort study Prognostic factor(s) assessed around breast cancer diagnosis Data collection period: 2012-2015; 2012-2017 (Caumette 2021)
Participants	Inclusion criteria: • We included women who were professionally active; • Age 57 years or younger at the time of BC diagnosis (at least 5 years younger than legal retirement age in France); • Who had updated work status 2 years after BC diagnosis. Exclusion criteria: • No information on work situation at baseline (Dumas 2020); • Not employed at baseline (Dumas 2020); • Not treated with curative intent (patients with no surgery) (Dumas 2020); • Patients with evidence of local or distant recurrence (Dumas 2020); • Patients who died before the end of the study (Dumas 2020); • No prior history of cancer other than basal cell skin cancer or in situ cervical carcinoma within the past 5 years; inflammatory breast cancer (Dumas 2020); • Lost to follow-up (Caumette 2021);

Di Meglio 2020 *(Continued)*

- Withdrew consent (Caumette 2021).

Additional selection criteria applicable to this review: None

Sample size (signed informed consent): NR; 1874 (Dumas 2020): NR

Sample size (included in the analysis): 1869; 1874 (Dumas 2020); 3004 (Caumette 2021)

Prognostic factors

Prognostic factors included in this review (definition, assessment):

- Comorbidity (Charlson index, self-report);
- Age (NR, self-report);
- Educational level (primary or lower vs high school, self-report);
- Income (household income, self-report);
- Premenopausal status (yes vs no, self-report);
- Anxiety (yes vs non-case, self-report);
- Depression (yes vs non-case, self-report);
- Cancer stage (I, II, III, self-report);
- Mastectomy (partial surgery vs mastectomy, self-report);
- Axillary lymph node dissection (vs sentinel lymph node, self-report);
- Chemotherapy (yes vs no, self-report);
- Hormone treatment (yes vs no, self-report);
- Anti-HER2 therapy (yes vs no, self-report);
- Partner status (yes vs no, self-report) (Dumas 2020);
- Children living at home (economically dependent children living in the household, self-report (Dumas 2020);
- Working hours (full-time vs part-time, self-report) (Dumas 2020);
- Radiotherapy (yes vs no, self-report) (Dumas 2020).

Prognostic factors measured in the included study but not included in this review (reason for not included):

- Smoking behavior (not included in our variable framework);
- Physical activity (not included in our variable framework);
- Occupational class (not included in our variable framework) (Dumas 2020);
- Work-life imbalance (not included in our variable framework) (Dumas 2020);
- Combinations of local treatment (not included in our variable framework) (Dumas 2020);
- Combination of systemic treatments (not included in our variable framework) (Dumas 2020);
- > 1 CTCAE severe physical toxicity (not measured at the appropriate measurement moment) (Dumas 2020);
- Severe breast morbidity (not measured at the appropriate measurement moment) (Dumas 2020);
- Severe arm morbidity (not measured at the appropriate measurement moment) (Dumas 2020);
- Severe systemic therapy adverse effects (not measured at the appropriate measurement moment) (Dumas 2020);
- Severe physical fatigue (not measured at the appropriate measurement moment) (Dumas 2020);
- Severe cognitive fatigue (not measured at the appropriate measurement moment) (Dumas 2020);
- Severe emotional fatigue (not measured at the appropriate measurement moment) (Dumas 2020);
- Anxiety (not measured at the appropriate measurement moment) (Dumas 2020);
- Depression (not measured at the appropriate measurement moment) (Dumas 2020);
- Single woman with no economically dependent children (not included in our variable framework) (Caumette 2021);
- Partnered woman with no economically dependent children (not included in our variable framework) (Caumette 2021);
- Number of economically dependent children (not included in our variable framework) (Caumette 2021);

Di Meglio 2020 *(Continued)*

	• Perceived support by the partner (not included in our variable framework) (Caumette 2021).
Outcomes	Definition:: Non-return to work 2 years after BC diagnosis: binary variable grouping part-time and full-time workers (Dumas 2020); RTW 2 years after BC diagnosis (Caumette 2021) Assessment: Self-report Follow-up period: 24 months N (%) who returned to work at the longest follow-up: 1471 (79%); 1475 (80%) (Dumas 2020): NR (Caumette 2021)
Statistical approach	Multivariable logistic regression models Method for selection of prognostic factors for inclusion in multivariable modeling: Covariates were selected for inclusion in the models in order to account for significant differences between BMI groups at baseline (with a univariate P value < 0.05) and for variables that had been previously identified to affect employment after BC. We first adjusted for treatment variables as well as clinical and socioeconomic covariates collected at diagnosis (model 1) and then additionally adjusted for CTCAE toxicities and PROs collected at T1 (model 2). We assessed pairwise correlation between the symptom-related covariates using the x2 test and Cramer's V and tested interactions between correlated variables. Multiple imputations were performed with the fully conditional specification method. We ran sensitivity analyses using QLQ-FA12 subscale scores as continuous variables in the absence of a validated threshold to dichotomize the continuum of scores. We also analyzed the impact of change in severe toxicities between baseline (diagnosis) and T1 for EORTC and HADS subscales. (Dumas 2020). Multivariate logistic regression analyses were performed. The models were adjusted for age (< 40, 40–49 or ≥ 50 years), clinical factors, treatment side effects at the first post-treatment visit (1 year after diagnosis) and household income (< 2500, 2500–3000, 3000–4000, > 4000 Euros). Clinical factors included stage at diagnosis (I, II, III), comorbidities at diagnosis, treatment and their side effects 1 year after diagnosis. Comorbidities at diagnosis were evaluated using the Charlson comorbidity index (0, 1 ≥ 2) and a binary variable assessing the presence of ≥ 3 additional comorbid medical conditions not captured by the Charlson. Information about breast surgery (conservative/mastectomy), lymph node surgery (no or sentinel dissection/axillary dissection), systemic treatment (chemotherapy, hormone therapy, anti-HER2 therapy) (yes/no) and radiotherapy (yes/no) was collected. Physical side effects of treatment were collected by a nurse, and defined as the presence of any severe toxicities (grade ≥ 3) using version 4 of the Common Toxicity Criteria Adverse Events Scale (CTCAE). Additional treatment side effects were collected using three subscales of the breast cancer module (QLQ-BR23) (systemic therapy side effects, arm morbidity and breast morbidity as continuous variables) of the European Organization for Research and Treatment of Cancer (EORTC) self-reported quality-of-life questionnaire and the fatigue subscale (as continuous variable) of the core EORTC questionnaire(QLQ-C30). In addition, anxiety and depression were assessed using the Hospital Anxiety and Depression Scale (HADS) (non-case (0–7), doubtful (8–10), case (11–21). A sensitivity analysis was realized in the subgroup of women who returned to work and with known working conditions, to investigate the association between household characteristics and change in working time between diagnosis and two years after diagnosis using multinomial logistic regressions (full-time work two years after diagnosis, full-time work at diagnosis and part-time work two years after diagnosis, always part-time work). All analyses were performed with SAS 9.4 (SAS software for Windows version 9.4, SAS Institute Inc., Cary, NC, USA) (Caumette 2021).
Country	France
Notes	Additional information was sought from the authors. The authors kindly responded that the request could unfortunately not be met. Risk of bias was assessed with the Quality In Prognosis Studies (QUIPS) tool so all risk of bias ratings of 'unclear' risk of bias should be read as 'moderate' risk of bias.

Di Meglio 2020 *(Continued)*

Item	Authors' judgement	Support for judgement
Study Participation	Unclear	The participation of eligible individuals is unknown and it is unknown to what extent the sample represents the population of interest on key characteristics (i.e. cancer stage, income, type of surgery).
Study Attrition	Yes	Participants who did not complete the study were described in global terms only; however, loss to follow-up is below our pre-defined cut-off point (i.e. 22%).
Prognostic Factor Measurement	Yes	PFs described adequately and the proportion of the study sample that completed data for PFs is > 75%.
Outcome Measurement	No	A clear definition of outcome is not provided.
Study Confounding	Yes	Adjusted analyses have accounted for key characteristics (i.e. cancer stage, income, type of surgery).
Statistical Analysis and Reporting	Yes	Statistical approach seems appropriate for the design of the study. The strategy for model building seems sufficiently presented to assess the adequacy of the analysis. No indication of selective reporting

Hedayati 2013

Study characteristics	
Methods	Prospective cohort study: Prognostic factor(s) assessed at the end of adjuvant cancer treatment Data collection period: 2006-2009
Participants	Inclusion criteria: • All women had breast cancer that had been diagnosed and treated in the Department of Oncology, Karolinska University Hospital; • Women aged 40–64 years; • Who reported having worked part-time or full-time before their original diagnosis; • Who had received adjuvant therapy. Exclusion criteria: None Additional selection criteria applicable to this review: None Sample size (signed informed consent): 44 Sample size (included in the analysis): 44
Prognostic factors	Prognostic factors included in this review (definition, assessment): • Age (2 categories, self-report); • Educational level (2 categories years of education, self-report); • Partner status (married vs single, self-report); • Mastectomy (yes vs no, self-report); • Premenopausal status (yes vs no, self-report); • Physical Health (EORTC-QLQ-C30, self-report);

Hedayati 2013 *(Continued)*

- Role functioning (EORTC-QLQ-C30, self-report);
- Social health (EORTC-QLQ-C30, self-report);
- Symptoms (EORTC-QLQ-C30, symptom scale, self-report);
- Anti-HER2 therapy (yes vs no, NR);
- Cancer stage (Elston grade, NR);
- Sentinel lymph node (yes vs no, NR).

Prognostic factors measured in the included study but not included in this review (reason for not included):

- Dyspnea (EORTC-QLQ-C30, symptom scale, self-report);
- Sleep disturbance (EORTC-QLQ-C30, symptom scale, self-report);
- Body image (EORTC-QLQ-C30, symptom scale, self-report);
- Future perspective (EORTC-QLQ-C30, symptom scale, self-report);
- Breast symptoms (EORTC-QLQ-C30,symptom scale, self-report);
- Arm symptoms (EORTC-QLQ-C30, symptom scale, self-report).

Outcomes	Definition: Working or not Assessment: Self-report Follow-up period: 8, 11 months N (%) who returned to work at the longest follow-up: 30 (68%)
Statistical approach	Generalized linear model Method for selection of prognostic factors for inclusion in multivariable modeling: We used a generalized linear model that allows specifying the within-group correlation structure among the observed cohort. We wanted to predict work status (working or not) at 8 and 11 months after diagnosis with scores for memory, attention, response and processing speed, quality of life, depression, anxiety and quality of life (QLQ-C30 and QLQ-BR23). All models were adjusted for age, education, marital status and work status.
Country	Sweden
Notes	Risk of bias was assessed with the Quality In Prognosis Studies (QUIPS) tool so all risk of bias ratings of 'unclear' risk of bias should be read as 'moderate' risk of bias.

Item	Authors' judgement	Support for judgement
Study Participation	Unclear	The participation of eligible individuals is unknown and it is unknown to what extent the sample represents the population of interest on key characteristics (i.e. cancer stage, income, type of surgery).
Study Attrition	Yes	It is unknown whether there are important differences between key characteristics (i.e. cancer stage, income, type of surgery) and outcomes in participants who completed the study and those who did not; however, loss to follow-up is below our pre-defined cut-off point (i.e. 2%).
Prognostic Factor Measurement	Yes	Some PFs described briefly and the proportion of the study sample that completed data for PFs is unknown but it is assumed that it is 100%.
Outcome Measurement	No	A clear definition of outcome is not provided and the method of outcome measurement is also not provided.

Hedayati 2013 *(Continued)*

Study Confounding	No	Important potential confounders are not appropriately accounted for.
Statistical Analysis and Reporting	No	There was selective reporting of results.

Jensen 2019

Study characteristics	
Methods	Study design (as judged by the reviewers): Prospective cohort study Prognostic factor(s) assessed around breast cancer diagnosis Data collection period: 2000-2012
Participants	Inclusion criteria: • Women with primary invasive breast cancer diagnosed between 1 January 2000 and 31 December 2012; • Who were less than 64 years of age at diagnosis. Exclusion criteria: • Individuals receiving permanent benefits; • Temporary labor market-related benefits; • Temporary health-related benefits, one month prior to the diagnosis of breast cancer; • Women not resident in Denmark; • Those with missing values were also excluded. Additional selection criteria applicable to this review: None Sample size (signed informed consent): NA Sample size (included in the analysis): 16,886
Prognostic factors	Prognostic factors included in this review (definition, assessment): • Depression (prescription of psychiatric medical treatment, registry); • Age (age at diagnosis, registry); • Partner status (married/cohabiting or single, registry); • Lumpectomy (lumpectomy vs mastectomy, registry); • Chemotherapy (chemotherapy only vs no adjuvant treatment (endocrine + chemotherapy not included, registry); • Hormone treatment (endocrine therapy alone vs none (endocrine + chemo not included, registry); • Educational level (we grouped individuals according to their highest educational attainment at the time of their cancer diagnosis. We deviated from the ISCED classification at its fourth level, i.e. post-secondary non-tertiary education, as no such programs exist in Denmark. Our categorization strategy resulted in three groups (A: early childhood education, primary education, and lower secondary education, (ISCED levels 0–2); B: high school or vocational education, and short-cycle tertiary education (ISCED levels 3 and 5), and C: medium-length tertiary education, bachelor, masters, and PhD degrees (ISCED levels 6–8), registry); • Income (income was deflated according to its 2009 valuation, and then divided into quartiles according to average income over years -1 and -2 before the cancer diagnosis. Three groups were constructed on the basis of these quartiles: low = first quartile (< 342,890 DKK), middle = second and third quartiles (342,891–551,133 DKK), and high = fourth quartile (> 551,134 DKK). registry); • Tumor size (in mm, registry).

Jensen 2019 *(Continued)*

	Prognostic factors measured in the included study but not included in this review (reason for not included): • Year of diagnosis (not included in our variable framework); • Number of lymph nodes involvement (not included in our variable framework).
Outcomes	Definition: Returning to work was defined as not having any of the following benefits: unemployment, social assistance, rehabilitation, and vocational rehabilitation, benefit), temporary health-related benefits (sickness benefit), and permanent benefits (voluntary early retirement benefit, part-time permanent benefit, and disability pension), transfer payments, maternity leave pay, funded grants for state education or adult apprenticeships. Assessment: Registry Follow-up period: 12 months N (%) who returned to work at the longest follow-up: 11,404 (67%)
Statistical approach	Poisson regression Method for selection of prognostic factors for inclusion in multivariable modeling: NR
Country	Denmark
Notes	Risk of bias was assessed with the Quality In Prognosis Studies (QUIPS) tool so all risk of bias ratings of 'unclear' risk of bias should be read as 'moderate' risk of bias.

Item	Authors' judgement	Support for judgement
Study Participation	Yes	The participation of eligible individuals is above our pre-defined cut-off point (i.e. 93%) but it is unknown to what extent the sample represents the population of interest on key characteristics (i.e. cancer stage, income, type of surgery).
Study Attrition	Yes	Register-based study; no loss-to-follow-up
Prognostic Factor Measurement	Yes	PFs described adequately and the proportion of the study sample that completed data for PFs is > 75%.
Outcome Measurement	Yes	Adequate definition of the outcome is provided.
Study Confounding	Yes	Adjusted analyses have accounted for key characteristics (i.e. cancer stage, income, type of surgery).
Statistical Analysis and Reporting	Yes	Statistical approach seems appropriate for the design of the study. The strategy for model building seems sufficiently presented to assess the adequacy of the analysis. No indication of selective reporting

Johnsson 2007

Study characteristics	
Methods	Study design (as judged by the reviewers): Prospective cohort study

Johnsson 2007 *(Continued)*

	Prognostic factor(s) assessed around breast cancer diagnosis Data collection period: 1990-1994
Participants	Inclusion criteria: • Histologically verified invasive breast cancer; • Premenopausal status; • Primary surgery consisting of a modified radical mastectomy or sector resection plus axillary dissection; • Node-positive axillary nodes or node-negative disease provided the histopathological tumor size was ≥ 10 mm; • No clinical evidence of distant metastases. Exclusion criteria: • Inoperable breast cancer; • Prior radiotherapy; • Prior neoadjuvant chemotherapy and/or; • Prior endocrine therapy; and • Current endocrine therapy. Additional selection criteria applicable to this review: None Sample size (signed informed consent): 270 Sample size (included in the analysis): 220
Prognostic factors	Prognostic factors included in this review (definition, assessment): • Chemotherapy (yes vs no, medical record); • Radiotherapy (yes vs no, medical record); • Age (two categories, self-report); • Educational level (nine years' schooling, upper secondary school, university education, self-report); • Partner status (single vs husband/partner, self-report); • Children living at home (< 18 years yes vs no, self-report). Prognostic factors measured in the included study but not included in this review (reason for not included): None
Outcomes	Definition: Working at least 75% of the reported rate of employment at baseline Assessment: Self-report, medical record Follow-up period: 12, 18, 24 months N (%) who returned to work at the longest follow-up: 187 (84%)
Statistical approach	Logistic regression Method for selection of prognostic factors for inclusion in multivariable modeling: NA
Country	Sweden
Notes	We used the RoB1 integration but used the appropriate risk of bias tool, QUIPS. The middle rating of quality was thus 'moderate' instead of 'unclear'.

Johnsson 2007 *(Continued)*

Item	Authors' judgement	Support for judgement
Study Participation	Unclear	The participation of eligible individuals is unknown and it is unknown to what extent the sample represents the population of interest on key characteristics (i.e. cancer stage, income, type of surgery).
Study Attrition	Yes	It is unknown whether there are important differences between key characteristics (i.e. cancer stage, income, type of surgery) and outcomes in participants who completed the study and those who did not; however, loss to follow-up is below our pre-defined cut-off point (i.e. 82%).
Prognostic Factor Measurement	Unclear	PFs described briefly and the proportion of the study sample that completed data for PFs is unknown.
Outcome Measurement	Yes	Adequate definition of the outcome is provided.
Study Confounding	No	Important potential confounders are not appropriately accounted for.
Statistical Analysis and Reporting	No	Selective reporting of results

Johnsson 2009

Study characteristics	
Methods	Study design (as judged by the reviewers): Prospective cohort study Prognostic factor(s) assessed around breast cancer diagnosis Data collection period: 2002-2004
Participants	Inclusion criteria: • Women aged 18-64 years; • With a new and histologically verified invasive breast cancer or ductal cancer in situ (DCIS) were included; • If they had undergone primary surgery; • Had no clinical evidence of distant metastases; • Lived in the Stockholm area; • Were able to understand and read Swedish; • Reported having worked part-time or full-time before the diagnosis of breast cancer. Exclusion criteria: • Inoperable breast cancer; • Prior irradiation; • Prior neo-adjuvant chemotherapy; • Prior endocrine therapy; • Women who had been on sick leave for more than 6 months prior to their breast cancer diagnosis; • Women suffering from another serious disease were also excluded. Additional selection criteria applicable to this review: None Sample size (signed informed consent): 102 Sample size (included in the analysis): 97

Johnsson 2009 *(Continued)*

Prognostic factors	Prognostic factors included in this review (definition, assessment): • Age (two categories, self-report); • History of sickness absence (number of days of self-reported sick leave in the previous 12 months, self-report); • General health (very good/good vs fair/poor/very poor, self-report); • Psychologically demanding work (according to Therorell and Karasek, self-report); • Axillary lymph node dissection (yes vs no, medical file); • Radiotherapy (yes vs no, medical file); • Chemotherapy (yes vs no, medical file); • Country of birth (NR, self-report). Prognostic factors measured in the included study but not included in this review (reason for not included): • Life as a whole (not included in our variable framework); • Vocational satisfaction (not included in our variable framework); • Activities of daily living (not measured at the appropriate measurement moment).
Outcomes	Definition: Working to the same extent as before the breast cancer Assessment: Self-report, medical record Follow-up period: 10 months N (%) who returned to work at the longest follow-up: 57(59%)
Statistical approach	Logistic regression Method for selection of prognostic factors for inclusion in multivariable modeling: NA
Country	Sweden
Notes	Risk of bias was assessed with the Quality In Prognosis Studies (QUIPS) tool so all risk of bias ratings of 'unclear' risk of bias should be read as 'moderate' risk of bias.

Item	Authors' judgement	Support for judgement
Study Participation	Yes	The participation of eligible individuals is above our pre-defined cut-off point (i.e. 77%) but it is unknown to what extent the sample represents the population of interest on key characteristics (i.e. cancer stage, income, type of surgery).
Study Attrition	Yes	It is unknown whether there are important differences between key characteristics (i.e. cancer stage, income, type of surgery) in participants who completed the study and those who did not; however, loss to follow-up is below our pre-defined cut-off point (i.e. 5%).
Prognostic Factor Measurement	Yes	PFs and measurement points described briefly but the proportion of the study sample that completed data for PFs is above our pre-defined cut-off point (i.e. 95%).
Outcome Measurement	Yes	Adequate definition of the outcome is provided.
Study Confounding	No	Important potential confounders are not appropriately accounted for.

Johnsson 2009 *(Continued)*

Statistical Analysis and Reporting	No	There was selective reporting of results. The strategy for model building was not sufficiently presented to assess the adequacy of the analysis.

Landeiro 2018

Study characteristics	
Methods	Study design (as judged by the reviewers): Prospective cohort study Prognostic factor(s) assessed at end of adjuvant cancer treatment Data collection period: 2012-2013
Participants	Inclusion criteria: • Participants were required to be ≤ 5 months post-diagnosis; • They could be receiving current treatment or may have undergone treatment with curative intent; • They had to be cognitively able to participate. Exclusion criteria: • Metastatic disease (because this population may present symptoms that affect RTW); • A previous cancer diagnosis; • Pregnancy or < 12 months postpartum; • Previous retirement. Additional selection criteria applicable to this review: None Sample size (signed informed consent): 125 Sample size (included in the analysis): 121
Prognostic factors	Prognostic factors included in this review (definition, assessment): • Educational level (education was classified as no instruction/incomplete elementary school, complete elementary school/ high school incomplete, completed high school or some college, and completed college or a postgraduate degree, self-report); • Age (age at diagnosis, self-report); • Work accommodations measured at 6 months (NR, self-report); • Mastectomy (yes vs no, registry); • Breast reconstruction (yes vs no, registry); • Axillary lymph node dissection (yes vs no, registry); • Chemotherapy (yes vs no, registry); • Radiotherapy (yes vs no, registry); • Hormone treatment (yes vs no, registry); • anti-HER2 therapy (yes vs no, registry). Prognostic factors measured in the included study but not included in this review (reason for not included): • Changes in marital status (not measured at the appropriate measurement moment); • Changes in household income (not measured at the appropriate measurement moment); • Current work adjustments (not measured at the appropriate measurement moment); • Employer discrimination (not measured at the appropriate measurement moment); • Employer support (not measured at the appropriate measurement moment); • Health status (not included in our variable framework);

Landeiro 2018 *(Continued)*

- Weight gain (not included in our variable framework);
- Depression after cancer (not measured at the appropriate measurement moment);
- Pain (not included in our variable framework);
- Lymphedema (not measured at the appropriate measurement moment);
- Household income (not measured at the appropriate measurement moment).

Outcomes	Definition: Either part-time or full-time employment. A full-time job was defined as ≥ 35 hours of work per week, and a part-time job was defined as < 35 hours per week. Assessment: Self-report, registry Follow-up period: 6, 12, 24 months N (%) who returned to work at the longest follow-up: 67 (60%)
Statistical approach	Pearson chi-square (or Fisher exact) test for univariate and logistic regression for multivariate modeling Method for selection of prognostic factors for inclusion in multivariable modeling: A stepwise forward method, in which variables with P values < 0.2 in the unadjusted model were considered as candidate variables. Variables that were identified by the unadjusted model as independent factors associated with RTW at 24 months (P < 0.05) were retained in the final model.
Country	Brazil
Notes	Risk of bias was assessed with the Quality In Prognosis Studies (QUIPS) tool so all risk of bias ratings of 'unclear' risk of bias should be read as 'moderate' risk of bias.

Item	Authors' judgement	Support for judgement
Study Participation	No	The participation of eligible individuals is below our pre-defined cut-off point (i.e. 17%) and it is unknown to what extent the sample represents the population of interest on key characteristics (i.e. cancer stage, income, type of surgery).
Study Attrition	Yes	Participants who did not completed the study were more often diagnosed with advanced disease compared to those who did not; however, loss to follow-up is below our pre-defined cut-off point (i.e. 22%).
Prognostic Factor Measurement	Yes	PFs and measurement points described briefly but the proportion of the study sample that completed data for PFs is above our pre-defined cut-off point (i.e. 85%).
Outcome Measurement	Yes	Adequate definition of the outcome is provided.
Study Confounding	No	Cancer stage is not accounted for.
Statistical Analysis and Reporting	No	There was selective reporting of results. The strategy for model building was not sufficiently presented to assess the adequacy of the analysis.

Le Gall 2022

Study characteristics	
Methods	Study design (as judged by the reviewers): Prospective cohort study

Le Gall 2022 *(Continued)*

	Prognostic factor(s) assessed around breast cancer diagnosis Data collection period: 2011-2014
Participants	Inclusion criteria: • Women were between the age of 21 and 64 years; • Women with localized BC treated at the François Baclesse Comprehensive Cancer Center (Caen, France); • Aged over 18 years; • With histologically confirmed non-metastatic BC; • Having undergone tumor surgery; • Able to sign free and informed consent; • And for return-to-work analysis, not be unemployed or disabled at the time of inclusion; • At the time of inclusion, patients should have received 3 FEC (5-fluorouracil, epirubicin, cyclophosphamide) cycles and 3 docetaxel cycles (or 2 docetaxel cycles in the case of an adverse event (AE)). Exclusion criteria: • Pregnant; • Breastfeeding patients; • Under guardianship or curatorial supervision; • Patients with another cancer history in the last 5 years (apart from cutaneous basal cell carcinomas or uterine/cervix cancer treated and cured). Additional selection criteria applicable to this review: NA Sample size (signed informed consent): 70 Sample size (included in the analysis): 55
Prognostic factors	Prognostic factors included in this review (definition, assessment): • Anti-HER2 therapy (yes vs no, medical record) Prognostic factors measured in the included study but not included in this review (reason for not included): None
Outcomes	Definition: NR Assessment: Self-report, medical record Follow-up period: 15 months N (%) who returned to work at the longest follow-up: 39 (72%)
Statistical approach	We compared patient characteristics, scores for fatigue and QoL, impact on work life, and psychosocial impact between the 2 groups (paired Student t test, Mann–Whitney test, MacNemar chi-square test) during and after treatment. $P < 0.05$ was considered statistically significant. SAS version 9.4 was used to analyze data.
Country	France
Notes	Risk of bias was assessed with the Quality In Prognosis Studies (QUIPS) tool so all risk of bias ratings of 'unclear' risk of bias should be read as 'moderate' risk of bias.

Item	Authors' judgement	Support for judgement

Le Gall 2022 *(Continued)*

Study Participation	Unclear	The participation of eligible individuals is unknown and it is unknown to what extent the sample represents the population of interest on key characteristics (i.e. cancer stage, income, type of surgery).
Study Attrition	Yes	54 of the 55 included in the analysis. NR differences between responders and non-responders
Prognostic Factor Measurement	Yes	Defined and no missing values
Outcome Measurement	No	No definition given for return to work
Study Confounding	No	Only matched on age

Lilliehorn 2013

Study characteristics	
Methods	Study design (as judged by the reviewers): Prospective cohort study Prognostic factor(s) assessed at end of adjuvant cancer treatment Data collection period: 2008
Participants	Inclusion criteria: • All women newly diagnosed with breast cancer; • Who were younger than 60 years of age; • Being treated at the Radiation Department of a Swedish university hospital over a 12-month period. Exclusion criteria: • Those who retired early; • Those who were on full-time sick leave before the cancer diagnosis; • Those who were unemployed; • Had an unclear relationship to the labor market. Additional selection criteria applicable to this review: None Sample size (signed informed consent): 56 Sample size (included in the analysis): 56
Prognostic factors	Prognostic factors included in this review (definition, assessment): • Chemotherapy (yes vs no, self-report) Prognostic factors measured in the included study but not included in this review (reason for not included): None
Outcomes	Definition: NR Assessment: Self-report (interviews) Follow-up period: 6, 12, 18 months N (%) who returned to work at the longest follow-up: 32 (57%)

Lilliehorn 2013 *(Continued)*

Statistical approach	Descriptive analyses only Method for selection of prognostic factors for inclusion in multivariable modeling: NA
Country	Sweden
Notes	Risk of bias was assessed with the Quality In Prognosis Studies (QUIPS) tool so all risk of bias ratings of 'unclear' risk of bias should be read as 'moderate' risk of bias.

Item	Authors' judgement	Support for judgement
Study Participation	Yes	The participation of eligible individuals is above our pre-defined cut-off point (i.e. 72%); it is unknown to what extent the sample represents the population of interest on key characteristics (i.e. cancer stage, income, type of surgery).
Study Attrition	Yes	No loss to follow-up
Prognostic Factor Measurement	Yes	PFs described adequately and the proportion of the study sample that completed data for PFs is > 75%.
Outcome Measurement	No	A clear definition of outcome is not provided.
Study Confounding	No	Important potential confounders are not appropriately accounted for.
Statistical Analysis and Reporting	Yes	No indication of selective reporting. No statistical analysis

Noeres 2013

Study characteristics	
Methods	Study design (as judged by the reviewers): Prospective cohort study Prognostic factor(s) assessed around breast cancer diagnosis Data collection period: 2002-2010
Participants	Inclusion criteria: • Inclusion criteria for participation in the initial longitudinal study were primary manifestations of breast cancer (stages T1–T3, N0–N2); • No evidence of metastases. Exclusion criteria: • Women with multiple cancers; • Recurrences of breast cancer; • Psychiatric diagnoses; • Women older than 70. Additional selection criteria applicable to this review: employed at breast cancer diagnosis Sample size (signed informed consent): 159 Sample size (included in the analysis): 130

Noeres 2013 *(Continued)*

Prognostic factors	Prognostic factors included in this review (definition, assessment): • Age (age at time of measurement, self-report); • Educational level (< 10 years of schooling vs 10-year schooling, self-report); • Working hours (part-time vs full-time, self-report); • Partner status (not living with a partner(s), living with a partner, self-report); • Tumor size (≤ 1 cm, 1-2 cm, > 2 cm, self-report); • Symptoms/side effects from breast cancer treatment (include symptoms following chemotherapy, radiation therapy and endocrine therapy, self-report). Prognostic factors measured in the included study but not included in this review (reason for not included): • Severity of difficulties at work before surgery (not included in our variable framework); • Participation in inhouse rehabilitation (not included in our variable framework).
Outcomes	Definition: NR Assessment: Self-report (interviews) Data collection period: 12 months N (%) who returned to work at the longest follow-up: 130 (56%)
Statistical approach	Logistic regression Method for selection of prognostic factors for inclusion in multivariable modeling: Adjusted for all variables of interest
Country	Germany
Notes	Risk of bias was assessed with the Quality In Prognosis Studies (QUIPS) tool so all risk of bias ratings of 'unclear' risk of bias should be read as 'moderate' risk of bias.

Item	Authors' judgement	Support for judgement
Study Participation	Unclear	The participation of eligible individuals is unknown and it is unknown to what extent the sample represents the population of interest on key characteristics (i.e. cancer stage, income, type of surgery).
Study Attrition	Yes	It is unknown whether there are important differences between key characteristics (i.e. cancer stage, income, type of surgery) in participants who completed the study and those who did not; however, loss to follow-up is below our pre-defined cut-off point (i.e. 7%).
Prognostic Factor Measurement	Yes	PFs described briefly but the proportion of the study sample that completed data for PFs is above our pre-defined cut-off point (i.e. ≥ 94%).
Outcome Measurement	No	A clear definition of outcome is not provided.
Study Confounding	No	income and type of surgery are not accounted for.
Statistical Analysis and Reporting	No	There was selective reporting of results. The strategy for model building was not sufficiently presented to assess the adequacy of the analysis.

Porro 2019

Study characteristics	
Methods	Study design (as judged by the reviewers): Prospective cohort study Prognostic factor(s) assessed around breast cancer diagnosis Data collection period: 2014-2015
Participants	Inclusion criteria: • Patients were eligible for inclusion if they were 25 to 60 years old; • Employed at the time of a first diagnosis of breast cancer. Exclusion criteria: None Additional selection criteria applicable to this review: None Sample size (signed informed consent): 68 Sample size (included in the analysis): 68
Prognostic factors	Prognostic factors included in this review (definition, assessment): • QoL (EORTC QLQ-C30, self-report); • Physical health (EORTC QLQ-C30, self-report); • Role functioning (EORTC QLQ-C30, self-report); • Cognitive health (EORTC QLQ-C30, self-report); • Depression (EORTC QLQ-C30, self-report); • Social health (EORTC QLQ-C30, self-report); • Fatigue (EORTC QLQ-C30, self-report). Prognostic factors measured in the included study but not included in this review (reason for not included): • Pain (not included in our variable framework); • Nausea-vomiting (not included in our variable framework); • Dyspnea (not included in our variable framework); • Sleep disturbance (not included in our variable framework); • Appetite loss (not included in our variable framework); • Constipation (not included in our variable framework); • Diarrhea (not included in our variable framework); • Financial impact (not included in our variable framework).
Outcomes	Definition: Have you returned to work since our last interview (yes/no) Assessment: Self-report (interview) Follow-up period: 3, 6 months N (%) who returned to work at the longest follow-up: 34 (61%)
Statistical approach	Univariate and then multivariate logistic regression Method for selection of prognostic factors for inclusion in multivariable modeling: In the multivariate analysis, we controlled sociodemographic, medical and work characteristics.
Country	France

Porro 2019 *(Continued)*

Notes	Risk of bias was assessed with the Quality In Prognosis Studies (QUIPS) tool so all risk of bias ratings of 'unclear' risk of bias should be read as 'moderate' risk of bias.

Item	Authors' judgement	Support for judgement
Study Participation	No	The participation of eligible individuals is ≤ 70% (i.e. 67%) and it is unknown to what extent the sample represents the population of interest on key characteristics (i.e. cancer stage, income, type of surgery).
Study Attrition	Yes	It is unknown whether there are important differences between key characteristics (i.e. cancer stage, income, type of surgery) in participants who completed the study and those who did not; however, loss to follow-up is below our pre-defined cut-off point (i.e. 82%).
Prognostic Factor Measurement	Yes	PFs described adequately and the proportion of the study sample that completed data for PFs is > 75%.
Outcome Measurement	Yes	Adequate definition of the outcome is provided.
Study Confounding	No	Not all important confounders (i.e. cancer stage, income, type of surgery) were measured.
Statistical Analysis and Reporting	No	The strategy for model building was not sufficiently presented to assess the adequacy of the analysis. No indication of selective reporting

Roelen 2011

Study characteristics	
Methods	Study design (as judged by the reviewers): Prospective cohort study Prognostic factor(s) assessed around breast cancer diagnosis Data collection period: 2004-2006
Participants	Inclusion criteria: • sickness absence due to cancer; • aged 18–60 years; • in permanent paid employment at the time of diagnosis. Exclusion criteria: None Additional selection criteria applicable to this review: sickness absence due to breast cancer Sample size (signed informed consent): 1579 Sample size (included in the analysis): 1579
Prognostic factors	Prognostic factors included in this review (definition, assessment): • Age (< 40 years, 40–50 years and > 50 years, registry) Prognostic factors measured in the included study but not included in this review (reason for not included): None

Roelen 2011 *(Continued)*

Outcomes	Definition: Returning to work at equal earnings as before sickness absence, was the event of interest, because RTW in reduced earnings or lower-wage jobs is not consistently recorded in the occupational health services register. Assessment: Registry Follow-up period: 24 months N (%) who met the outcome at the longest follow-up: 1201 (76%)
Statistical approach	Cox regression Method for selection of prognostic factors for inclusion in multivariable modeling: NA
Country	Netherlands
Notes	Risk of bias was assessed with the Quality In Prognosis Studies (QUIPS) tool so all risk of bias ratings of 'unclear' risk of bias should be read as 'moderate' risk of bias.

Item	Authors' judgement	Support for judgement
Study Participation	Unclear	The participation of eligible individuals is unknown and it is unknown to what extent the sample represents the population of interest on key characteristics (i.e. cancer stage, income, type of surgery).
Study Attrition	Yes	Register-based study; no loss to follow-up
Prognostic Factor Measurement	Yes	PFs described adequately and the proportion of the study sample that completed data for PFs is > 75%.
Outcome Measurement	Yes	Adequate definition of the outcome is provided.
Study Confounding	No	Univariate analysis only
Statistical Analysis and Reporting	No	Unclear how the 12 male cancer survivors were included in the statistical analysis. No indication of selective reporting

Rosenberg 2019

Study characteristics	
Methods	Study design (as judged by the reviewers): Prospective cohort study Prognostic factor(s) assessed around breast cancer diagnosis Data collection period: 2006-2016
Participants	Inclusion criteria: • Women diagnosed with breast cancer; • Aged 40 and younger between 2006 and 2016. Exclusion criteria: None

Rosenberg 2019 *(Continued)*

	Additional selection criteria applicable to this review: • Excluded women who reported being out of the workforce both before diagnosis and 1 year after diagnosis; • Women who were missing data for variables included in the univariable and multivariable models. Sample size (signed informed consent): 911 Sample size (included in the analysis): 772
Prognostic factors	Prognostic factors included in this review (definition, assessment): • Age (at diagnosis, self-report); • Ethnicity (white non-Hispanic vs other ethnicity, self-report); • Educational level (college degree or greater, no college degree vs missing/unknown, self-report); • Partner status (married/living as married, unmarried, missing/unknown, self-report); • Cancer stage (0, 1, 2, 3, registry); • Chemotherapy (yes vs no, self-report in combination with medical record review); • Radiotherapy (yes vs no, self-report in combination with medical record review); • Mastectomy (yes vs no, self-report in combination with medical record review). Prognostic factors measured in the included study but not included in this review (reason for not included): • Financial comfort (not included in our variable framework); • Parity (not included in our variable framework).
Outcomes	Definition: At 1 year, participants were asked about their work life "right now," with the same response options. Women who reported any type of employment (full-time, part time, or self-employed) were categorized as "employed," while those who reported unemployment or being a homemaker were categorized as "unemployed." Employment trajectory was categorized as follows: (1) women who reported employment both pre-diagnosis and at 1 year after; (2) women not in the workforce at both time points; (3) women unemployed pre-diagnosis but employed at 1 year; (4) women who reported pre-diagnosis employment but were no longer in the workforce when surveyed 1 year after diagnosis. Assessment: Self-report in combination with medical record review Follow-up period: 12 months N (%) who returned to work at the longest follow-up: NR
Statistical approach	Univariable and multivariable logistic regression Method for selection of prognostic factors for inclusion in multivariable modeling: Including all variables of interest
Country	USA
Notes	Additional information was sought from the authors. Unfortunately, the request for reverse ORs could not be met. Risk of bias was assessed with the Quality In Prognosis Studies (QUIPS) tool so all risk of bias ratings of 'unclear' risk of bias should be read as 'moderate' risk of bias.

Item	Authors' judgement	Support for judgement

Rosenberg 2019 *(Continued)*

Study Participation	No	The participation of eligible individuals is below our pre-defined cut-off point (i.e. 60%) and it is unknown to what extent the sample represents the population of interest on key characteristics (i.e. cancer stage, income, type of surgery).
Study Attrition	Yes	It is unknown whether there are important differences between key characteristics (i.e. cancer stage, income, type of surgery) and outcomes in participants who completed the study and those who did not; however, loss to follow-up is below our pre-defined cut-off point (i.e. 27%).
Prognostic Factor Measurement	Yes	PFs described briefly but the proportion of the study sample that completed data for PFs is above our pre-defined cut-off point (i.e. 100%).
Outcome Measurement	Yes	Adequate definition of the outcome is provided.
Study Confounding	No	Only income is not accounted for.
Statistical Analysis and Reporting	No	The strategy for model building is not sufficiently presented to assess the adequacy of the analysis.

Wolvers 2018

Study characteristics	
Methods	Study design (as judged by the reviewers): Prospective cohort study Prognostic factor(s) assessed around breast cancer diagnosis Data collection period: NR
Participants	Inclusion criteria: • When they were aged between 18 and 60 years; • Had a primary diagnosis of cancer; • Were being or would soon be treated with chemotherapy with curative intent; • Eligible patients had been in paid employment at the time of diagnosis; • Were absent from work. Exclusion criteria: • Having testicular cancer; • Severe mental disability; • Being physically unable to perform exercise training. Additional selection criteria applicable to this review: None Sample size (signed informed consent): 88 Sample size (included in the analysis): 81 (full RTW) 76 (partial RTW)
Prognostic factors	Prognostic factors included in this review (definition, assessment): • Educational level (low vs medium/high, self-report); • Work ability (first question of the Work Ability Index, self-report); • Self-esteem/self-efficacy (11-item self-efficacy scale (Lagerveld 2010), self-report); • Fatigue (general fatigue subscale of the multidimensional fatigue inventory (Smets 1995), self-report).

Wolvers 2018 *(Continued)*

	Prognostic factors measured in the included study but not included in this review (reason for not included): • Sole breadwinner (not included in our variable framework); • Value of work (not included in our variable framework).
Outcomes	Definition: Length of time in calendar days from the baseline assessment T0. A distinction was made between partial RTW, defined as the initiation of any resumption of work, and full RTW, defined as working the number of hours specified in the labor contract. Assessment: Self-report Follow-up period: 6, 12, and 18 months N (%) who returned to work at the longest follow-up: 56 (70%)
Statistical approach	Cox proportional hazard models Method for selection of prognostic factors for inclusion in multivariable modeling: First, univariate, time-dependent Cox proportional hazard models were run for each time-dependent covariate. Second, an adjusted model for each time-dependent covariate was run, to control for potentially confounding effects of timing and prognostic factors. In the third step, the second research question was answered, on the additional predictive value of job self-efficacy, value of work, and fatigue over work ability. Those factors that were significant predictors at P values below 0.1 in the first two steps were added to a model with confounding factors and work ability as covariates.
Country	Netherlands
Notes	Risk of bias was assessed with the Quality In Prognosis Studies (QUIPS) tool so all risk of bias ratings of 'unclear' risk of bias should be read as 'moderate' risk of bias.

Item	Authors' judgement	Support for judgement
Study Participation	Unclear	The participation of eligible individuals is unknown and it is unknown to what extent the sample represents the population of interest on key characteristics (i.e. cancer stage, income, type of surgery).
Study Attrition	Unclear	The response rate (i.e. proportion of the study sample completing the study and providing outcome data) is unknown, and it is unknown whether this loss to follow-up is associated with key characteristics (i.e. cancer stage, income, type of surgery).
Prognostic Factor Measurement	Yes	PFs described adequately and the proportion of the study sample that completed data for PFs is > 75%
Outcome Measurement	Yes	An adequate definition of the outcome is provided.
Study Confounding	Yes	Potential important confounders were accounted for.
Statistical Analysis and Reporting	Yes	Statistical approach seems appropriate for the design of the study. The strategy for model building seems sufficiently presented to assess the adequacy of the analysis.

AE: adverse events
BC: breast cancer

BCS: breast cancer stage
BMI: Body Mass Index
CI: confidence Interval
CTCAE: Common Terminology Criteria for Adverse Events
DCIS: Ductal Carcinoma In Situ
div: divorced
DKK: Danish Krone
ECHI: Employment-Contingent Health Insurance
EORTC QLQ-C30: European Organization for Research and Treatment for Cancer-Quality of Life Questionnaire
FEC: 5-fluorouracil, epirubicin, cyclophosphamide
FMLA: Family and Medical Leave Act
HADS: Hospital Anxiety and Depression Scale
HER-2: Human Epidermal growth factor Receptor 2
HS: high school
INS: indicator of having one form of insurance or the other
ISCED: International Standard Classification of Education
NA: Not Applicable
NR: Not Recorded
OR: Odds Ratio
PF: Prognostic Factor
PRO: Patient-Reported Outcome
QLQ-BR23: Quality of Life Questionnaire - breast cancer 23
QLQ-FA12: Quality of Life Questionnaire - fatigue 12
QoL: quality of life
QUIPS: Quality In Prognosis Studies
RTW: return to work
Sep: separated
vs: versus
wid: widowed

Characteristics of excluded studies *[ordered by study ID]*

Study	Reason for exclusion
Adams 2004	Too short or too long follow-up - the follow-up period ranged from 6 to 108 months.
Agrawal 2021	Wrong outcome - productivity loss
Akezaki 2021	Wrong study design - cross-sectional
Alexanderson 2011	Wrong publication type - workshop on conference
Altundag 2019	Wrong publication type - letter to the editor
Amir 2007	Wrong study sample (not limited to BC) - 48% of the sample were breast cancer survivors
Anbari 2022	Record not published in a peer-reviewed journal
Anderson 2022	Wrong study design - qualitative
Arfi 2018	Insufficient information to determine eligibility for inclusion in this review Additional information was sought from the authors but not received.
Arndt 2019	Wrong study sample (not limited to BC) - 69% of the sample were breast cancer survivors
Artemkina 1987	No full text available
Artiushenko 1980	Wrong outcome - socio-labor activities

Study	Reason for exclusion
Artiushenko 1984	Too long or too short follow-up - the term of follow-up ranged 5-26 years.
Artyushenko 1984	Wrong outcome - work ability
Asselain 2011	No full text available
Ayala-Garcia 2021	Wrong population, not limited to BC
Baker 2007	No full text available
Balak 2008	Insufficient information to determine eligibility for inclusion in this review Additional information was sought from the authors. The authors kindly responded that the request could unfortunately not be met.
Barcenas 2015	Too short or too long follow-up - 4 years
Barry 2018	Wrong outcome - work changes
Bennett 2009	Wrong study sample (not limited to BC) - 47% of the sample were breast cancer survivors
Berlin 2022	Wrong outcome - any reduction/increase in work activities
Biddell 2021	Wrong outcome - employment disruption
Blasi 2011	Wrong publication type - narrative
Blinder 2012a	Too short or too long follow-up - 60 months
Blinder 2017	Wrong outcome - work retention
Blinder 2019	Wrong study design - review
Blinder 2021	No prognostic factors studied
Bloom 2007	Wrong publication type - symposium
Bohn 2022	Too long or too short follow-up - 8 years
Böttcher 2013	Wrong study sample (not limited to BC) - 54% of the sample were breast cancer survivors
Böttcher 2013a	Wrong study sample (not limited to BC) - 40% of the sample were breast cancer survivors
Bouzgarrou 2014	No prognostic factors studied
Boyages 2016	Wrong study design - cross-sectional
Bradley 2002	Wrong study design – cross-sectional
Bradley 2002a	Wrong study design – cross-sectional
Bradley 2005	Wrong study sample - controls included
Bradley 2006	Wrong outcome - missed days

Study	Reason for exclusion
Bradley 2007a	No prognostic factors studied
Branicki 2020	No prognostic factor studied
Brook 2022	Wrong population - % BC not recorded
Brown 2009	Wrong study sample (not limited to BC) - 50% of the sample were breast cancer survivors
Burak 2002	Wrong outcome - the time missed from work or activities of daily living
Bushunow 1995	Wrong study design - return to work assessed retrospectively
Calvio 2010	Wrong study design – cross-sectional
Candon 2015	Wrong study sample (not limited to BC) - 1/3 of the sample were breast cancer survivors
Carlsen 2008	Wrong study sample (not limited to BC) - NR how many of the sample included breast cancer survivors
Carlsen 2013	Wrong study sample (not limited to BC) - NR how many of the sample included breast cancer survivors
Carlsen 2014	Too long or too short follow-up - 0-10 years
Cattelani 2018	Wrong study sample (not limited to employed BC) - NR how many of the sample included breast cancer survivors
Cavanna 2011	Wrong publication type - letter to the editor
Cavanna 2019	Wrong study sample (not limited to BC) - 47% of the sample were breast cancer survivors
Cernikova 2022	Wrong study design - qualitative study
Chan 2021	No prognostic factors studied
Chapman 2001	Wrong publication type - PhD thesis
Chen 2020	Wrong outcome - sickness absence
Choi 2015	No prognostic factors studied
Clark 1989	No prognostic factors studied
Criscitiello 2020	Wrong outcome - work productivity
Dadhania 2018	Insufficient information to determine eligibility for inclusion in this review Additional information was sought from the authors but not received.
Dahl 2019	Wrong study sample (not limited to BC) - 50% of the sample were breast cancer survivors
Damkjaer 2011	Wrong outcome - early retirement
Dayan 2022	Too short or too long follow-up - 5 years

Study	Reason for exclusion
De Azua 2022	Wrong outcome - discrimination
Denning 2016	No prognostic factors studied
Donceel 2010	Wrong publication type - workshop on conference
Donskaia 1984	Wrong outcome - work capacity
Drolet 2005	Wrong outcome - more than four weeks of absence
Drolet 2008	No full text available
Dumas 2022	Wrong publication type - narrative review
Dutkevitch 2017	No full text available
Eaker 2011	Too long or too short follow-up - 3 and 5 years
Ebenhan 2013	Wrong study sample - not all employed at baseline
Eberle 2012	Wrong study design - wrong baseline
Ekenga 2018	Wrong study sample (not limited to BC) - NR how many of the sample included breast cancer survivors
Ekenga 2018a	Wrong outcome - diminished employment
Ekenga 2020	Wrong study sample (not limited to BC) - NR how many of the sample included breast cancer survivors
Elham 2020	Wrong outcome - sickness absence and disability
Emerson 2022	Too short or too long follow-up - 25 months
Endo 2016	Wrong study sample (not limited to BC) - NR how many of the sample included breast cancer survivors
Fantoni 2010	Too short or too long follow-up - a median follow-up of 36 months
Ferrier 2021	Wrong outcome - sick-leave days
Ganem 2016	Wrong outcome - 1 day's absence from work
Garcia-Torres 2018	Too long or too short follow-up - between 1 and 21 years
Gernaat 2021	Wrong outcome - sickness absence
Gesellschaft 2004	No full text available
Ghasempour 2020	Wrong study sample (not limited to BC) - 45% of the sample were breast cancer survivors
Giordani 2017	Wrong study design – cross-sectional
Gordon 2007	Wrong outcome - paid and unpaid work

Study	Reason for exclusion
Goss 2014	Insufficient data to calculate risk estimate
Gragnano 2021	Wrong outcome - work suspension
Gregorowitsch 2018	Wrong outcome - work ability
Grinshpun 2019	Wrong study sample (not limited to employed women with BC) - 63% of the sample employed at baseline
Hassett 2009	Wrong outcome - changes in employment
Hastert 2020	Wrong study sample (not limited to BC) - 40% of the sample were breast cancer survivors
Hauglann 2012	Too long or too short follow-up - 14 years
Hedayati 2022	Wrong publication type - dissertation
Heiman 2023	Wrong outcome - sick leave
Heinesen 2013	Wrong study sample (not limited to employed women with BC) - NR how many of the sample included employed breast cancer survivors
Heinesen 2017	Too long or too short follow-up - 2-4 years
Heinesen 2018	Too long or too short follow-up - 4 years
Hequet 2022	Wrong study design - cross-sectional study design
Hernandez 2021	Wrong study sample (not limited to BC) - NR how many of the sample included breast cancer survivors
Heuser 2018	Wrong study sample (not limited to employed women with BC) - 39% of the sample employed at baseline Additional information was sought from the authors. The information kindly provided helped us to decide to exclude the paper.
Hinman 2001	No prognostic factors studied
Hjorth 2023	Prognostic factor not in our model - 20 genes
Hoffart Bøhn 2022	Too short or too long follow-up - 8 years
Hwa 2011	No prognostic factor studied
Jagsi 2013	Too long or too short follow-up - 4 years
Jagsi 2014	Too long or too short follow-up - 4 years
Jagsi 2017	Wrong outcome - employment disruption
Janssen 2022	Wrong population - not limited to BC
Jensen 2019a	No prognostic factors studied

Study	Reason for exclusion
Jeon 2017	Wrong study sample (not limited to BC) - 25% of the sample were breast cancer survivors
Jeon 2019	Too short or too long follow-up - 5 years
Kacem 2022	No full text available
Kalawsky 2009	No prognostic factors studied
Kelsall 2017	Wrong study sample (not limited to employed BC) - NR how many of the sample included employed breast cancer survivors
Ketterl 2018	Wrong study sample (not limited to BC) - 25% of the sample were breast cancer survivors
Kiasuwa 2018	Wrong study sample (not limited to BC) - 35% of the sample were breast cancer survivors
Kobayashi 2021	Wrong publication type - correspondence
Koch 2006	Wrong study design - wrong baseline
Kollerup 2021	Wrong population - not limited to BC
Kolodziejczyk 2016	Too long or too short follow-up - 3 years
Kvillemo 2017	Too long or too short follow-up - 3 and 5 years
Kvillemo 2021	No prognostic factors studied
Lambert-Obry 2016	Wrong outcome - work productivity
Landeiro 2022	Too short or too long follow-up - 36 months
Lee 1992	No prognostic factors studied
Lee 2015	Wrong study sample (not limited to BC) - NR how many of the sample included breast cancer survivors
Lee 2017	Wrong study sample (not limited to employed women with BC)
Leidenius 2005	Wrong study sample (not limited to BC)
Lewis 2020	Too long or too short follow-up - 3 years
Li 2021	Too long or too short follow-up - 36 months Additional information was sought from the authors. The information kindly provided helped us to decide to exclude the paper.
Lindbohm 2014	Too short or too long follow-up - 1-8 years
Lindqvist 2005	Wrong outcome - sick-leave days
Lo 2019	Wrong study sample (not limited to employed women with BC) - 25% of the sample employed at baseline
Lucci 2004	Too short or too long follow-up - median follow-up was 26 months

Study	Reason for exclusion
Luis 2018	Insufficient information to determine eligibility for inclusion in this review Additional information was sought from the authors but not received.
Lundh 2014	Wrong outcome - disability pension and sickness absence
Lyons 2019	Wrong study design – cross-sectional
Mahumud 2020	Wrong study sample (not limited to BC) - NR how many of the sample included breast cancer survivors
McArdle 1981	Wrong study design - randomized controlled trial
Mehnert 2017	Wrong study sample (not limited to BC) - 60% of the sample were breast cancer survivors
Mersni 2021	Wrong study sample (not limited to BC) - 45% of the sample were breast cancer survivors
Miedema 2007	Wrong study design - wrong baseline
Molina 2008	Wrong study sample (not limited to BC) - 28% of the sample were breast cancer survivors
Molina 2008a	Wrong study design – cross-sectional
Monteiro 2019	Too long and too short follow-up - 3 and 5 years
Morris 1988	Wrong outcome - work carried in and outside the home
Mourgues 2014	Wrong outcome - women's activities defined by calculating separately the total hourly volume of overall activities and occupational and non-occupational activities
Mujahid 2010	Wrong study design – cross-sectional
Mujahid 2011	Wrong study design – cross-sectional
Murray 2015	Wrong study sample (not limited to BC) - NR how many of the sample included breast cancer survivors
Musti 2018	Wrong study design – cross-sectional
Naughton 2020	Wrong outcome - job and insurance problems
Nikolayeva 1985	No prognostic factors studied
Nilsson 2013	Wrong study design – cross-sectional
Nilsson 2016	Wrong outcome - length of sick leave
Nilsson 2016a	Wrong outcome - importance of work/vocational satisfaction
Niyazov 2019	Wrong outcome - WPAI questionnaire
No authors listed 2009	Not published in peer-reviewed journal - clinical digest
No authors listed 2011	Not published in peer-reviewed journal - clinical digest

Study	Reason for exclusion
No authors listed 2014	Wrong publication type - erratum
No authors listed 2015	No full text available
No authors listed 2016	Wrong publication type - erratum
No authors listed 2017	Not published in peer-reviewed journal - abstract book
Oberst 2010	No prognostic factors studied
Ortega 2017	Wrong study design – cross-sectional
Osowiecka 2007	Wrong study design – retrospective
Paraponaris 2010	Wrong study sample (not limited to BC) - 30% of the sample were breast cancer survivors
Park 2008	Wrong study sample (not limited to BC) - 8% of the sample were breast cancer survivors
Park 2010	Wrong study sample (not limited to BC) - 11% of the sample were breast cancer survivors
Partridge 2016	Insufficient information to determine eligibility for inclusion in this review Additional information was sought from the authors but not received.
Pekkala 2018	Wrong outcome - sickness absence
Petersson 2018	Wrong outcome - sickness absence
Petralia 1995	No full text available
Petrescu 2021	Wrong study sample (not limited to employed women with BC)
Peuckmann 2009	Wrong study design – cross-sectional
Peugniez 2010	Wrong study design - retrospective
Plym 2018	Wrong outcome - loss in working days
Plym 2019	Too long or too short follow-up - 8 years' follow-up
Plym 2020	Too short or too long follow-up - within the first 5 years Additional information was sought from the authors. The information kindly provided helped us to decide to exclude the paper.
Pryce 2007	Wrong study design – cross-sectional
Quinlan 2009	Wrong outcome - disability and productivity
Quinlan 2011	Wrong outcome - disability and productivity
Remolina-Bonilla 2017	Wrong study design – cross-sectional
Ribi 2022	Wrong outcome - any reduction/increase in work activities
Rick 2019	Wrong study design - wrong baseline

Study	Reason for exclusion
Rick 2020	Wrong study design - wrong baseline
Rick 2021	Wrong study design - wrong baseline
Rider 2021	Wrong outcome - work productivity
Roelen 2009	Insufficient information to determine eligibility for inclusion in this review Additional information was sought from the authors. The authors kindly responded that the request could unfortunately not be met.
Roelen 2011a	Wrong study sample (not limited to BC) - 1642 of the 5234 were breast cancer survivors
Roelen 2011b	Prognostic factors studied not included in our model - year of diagnosis
Rosbjerg 2021	Wrong population - 51% of the sample were breast cancer survivors
Roth 2005	Wrong outcome - SF-36 item paid and unpaid work
Rotstein 1989	Wrong outcome - sick-listed days
Samuel 2020	Wrong study design – cross-sectional
Satariano 1996	Wrong study design – cross-sectional
Schmidt 2019	Wrong study design - return to work assessed retrospectively
Schwartzberg 2020	Wrong study sample (not limited to employed women with BC) - NR how many of the sample included employed breast cancer survivors
Serletti 1997	Wrong study sample (not limited to BC) - 76% of the sample were breast cancer survivors
Shankaran 2017	Wrong study sample (not limited to BC)
Shi 2011	Wrong study sample (not limited to BC) - 20% of the sample were breast cancer survivors
Short 2008	Wrong study sample (not limited to BC) - NR how many of the sample included breast cancer survivors
Short 2009	Wrong publication type - editorial
Singer 2014	Wrong study sample (not limited to BC) - 16% of the sample were breast cancer survivors
Sjovall 2012	No prognostic factors studied
So 2022	Wrong population - 24% of the sample had breast cancer diagnosis
Soderman 2019	Wrong outcome - sick-leave days
Soderman 2019a	Wrong study design – cross-sectional
Sorrentino 2018	Wrong outcome - time from treatment to work or housework resumption
Sowden 2014	Wrong study sample (not limited to BC) - 30% of the sample were breast cancer survivors

Study	Reason for exclusion
Spencer 2020	Wrong outcome - employment changes
Steiner 2008	Wrong study sample (not limited to BC) - 20% of the sample were breast cancer survivors
Stewart 2001	Wrong study design – cross-sectional
Strada 2006	Wrong publication type - conference abstract Additional information was sought from the authors but not received.
Strada 2008	Wrong publication type - conference abstract Additional information was sought from the authors but not received.
Stroppa 2011	Wrong study sample (not limited to BC) - 47% of the sample were breast cancer survivors Additional information was sought from the authors. The information kindly provided helped us to decide to exclude the paper.
Suur-Uski 2019	Wrong study outcome - incidence and duration of sickness absence
Tachi 2016	Wrong outcome - presenteeism
Tangka 2021	Wrong study design – cross-sectional
Taskila-Abrandt 2004	Wrong study sample (not limited to BC) - 1/3 of the sample were breast cancer survivors
Tevaarwerk 2010	Insufficient information to determine eligibility for inclusion in this review Additional information was sought from the authors but not received.
Tevaarwerk 2013	Wrong study sample (not limited to BC) - 75% of the sample were breast cancer survivors
Tevaarwerk 2016	Wrong study sample (not limited to BC) - 42% of the sample were breast cancer survivors
Tevaarwerk 2021	Wrong study sample (not limited to BC) - 69% of the sample were breast cancer survivors
Thandrayen 2021	Too short or too long follow-up - 5 years
Thielen 2015	Too short or too long follow-up - 3 years
Thorsen 2016	Wrong study sample (not limited to BC) - NR how many of the sample included women with breast cancer
Throckmorton 2015	Insufficient information to determine eligibility for inclusion in this review Additional information was sought from the authors but not received.
Torp 2012	Too long or too short follow-up - 5 years
Torp 2017	Wrong study sample (not limited to BC) - 64% of the sample were breast cancer survivors
Tseilikman 1977	Wrong outcome - work ability
Tunceli 2009	Wrong study sample (not limited to BC) - NR how many of the sample included women with breast cancer

Study	Reason for exclusion
Urquhart 2022	No prognostic factors studied
Varnier 2022	Too short or too long follow-up - 3 years
Vayr 2020	Wrong outcome - work adjustments
Verrill 2017	Wrong study design
Vidt 2022	Wrong study design - review
White-Means 2019	Wrong study sample (not limited to employed BC) - NR how many of the sample included employed breast cancer survivors
Wolvers 2019	Wrong outcome - work ability
Yang 2022	Wrong study design - wrong baseline
Yin 2017	Wrong outcome - work productivity
Yu 2012	Wrong study sample (not limited to BC) - 28% of the sample were breast cancer survivors
Zanville 2016	Prognostic factors studied not included in our model - induced peripheral neuropathy symptoms
Zheng 2016	Wrong outcome - annual medical expenditure and productivity

BC: breast cancer
NR: Not Recorded
SF-36: Short Form-36
WPAI: Work Productivity and Activity Impairment Questionnaire

Characteristics of studies awaiting classification *[ordered by study ID]*

Camejo-Martinez 2022

Notes	Awaiting professional translation

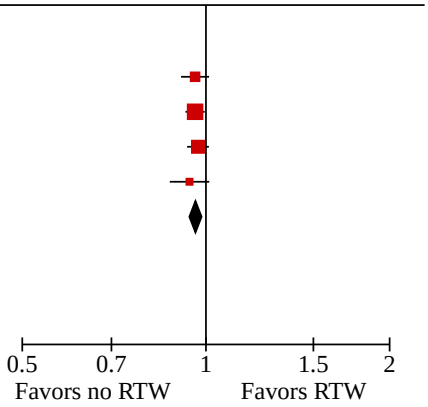
DATA AND ANALYSES

Comparison 1. Age (increase in age)

Outcome or subgroup title	No. of studies	No. of participants	Statistical method	Effect size
1.1 Assessment of prognostic factors around breast cancer diagnosis	4		Odds Ratio (IV, Random, 95% CI)	Subtotals only
1.1.1 Adjusted results	4		Odds Ratio (IV, Random, 95% CI)	0.96 [0.94, 0.98]

Analysis 1.1. Comparison 1: Age (increase in age), Outcome 1: Assessment of prognostic factors around breast cancer diagnosis

Study or Subgroup	log[OR]	SE	Weight	Odds Ratio IV, Random, 95% CI
1.1.1 Adjusted results				
Blinder 2012[a]	-0.041	0.027	18.9%	0.96 [0.91 , 1.01]
Bouknight 2006[b]	-0.041	0.0185	40.3%	0.96 [0.93 , 1.00]
Bradley 2014[c]	-0.03	0.021	31.3%	0.97 [0.93 , 1.01]
Noeres 2013[d]	-0.062	0.038	9.5%	0.94 [0.87 , 1.01]
Subtotal (Wald[e])			**100.0%**	**0.96 [0.94 , 0.98]**
Test for overall effect: Z = 3.37 (P = 0.0008)				
Heterogeneity: Tau² (DL[f]) = 0.00; Chi² = 0.56, df = 3 (P = 0.90); I² = 0%				



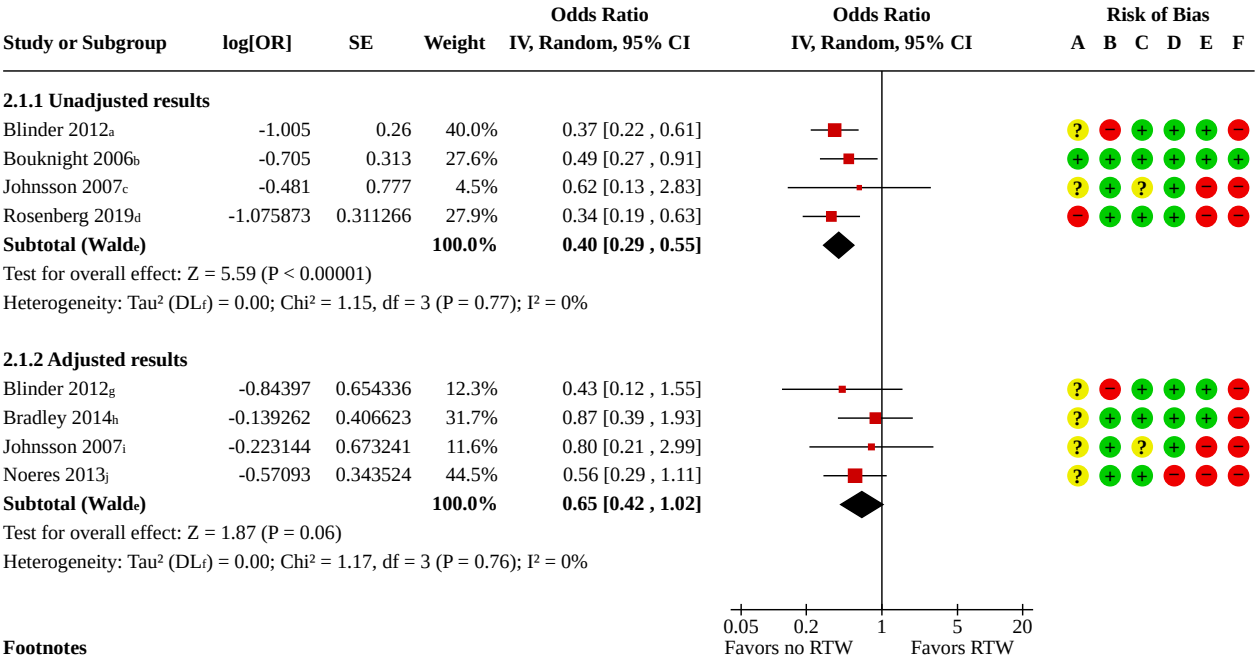
Footnotes

[a]251 participants
[b]404 participants
[c]548 participants
[d]130 participants
[e]CI calculated by Wald-type method.
[f]Tau² calculated by DerSimonian and Laird method.

Comparison 2. Educational level (low vs high (reference))

Outcome or subgroup title	No. of studies	No. of participants	Statistical method	Effect size
2.1 Assessment of prognostic factors around breast cancer diagnosis	6		Odds Ratio (IV, Random, 95% CI)	Subtotals only
2.1.1 Unadjusted results	4		Odds Ratio (IV, Random, 95% CI)	0.40 [0.29, 0.55]
2.1.2 Adjusted results	4		Odds Ratio (IV, Random, 95% CI)	0.65 [0.42, 1.02]

Analysis 2.1. Comparison 2: Educational level (low vs high (reference)), Outcome 1: Assessment of prognostic factors around breast cancer diagnosis



Footnotes

[a]274 participants
[b]416 participants
[c]218 participants
[d]772 participants
[e]CI calculated by Wald-type method.
[f]Tau² calculated by DerSimonian and Laird method.
[g]251 participants
[h]548 participants
[i]217 participants
[j]130 participants

Risk of bias legend

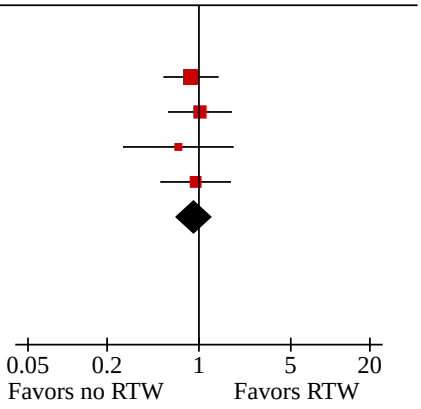
(A) Study Participation
(B) Study Attrition
(C) Prognostic Factor Measurement
(D) Outcome Measurement
(E) Study Confounding
(F) Statistical Analysis and Reporting

Comparison 3. Partner status (with a partner vs not (reference))

Outcome or subgroup title	No. of studies	No. of participants	Statistical method	Effect size
3.1 Assessment of prognostic factors around breast cancer diagnosis	4		Odds Ratio (IV, Random, 95% CI)	Subtotals only
3.1.1 Unadjusted	4		Odds Ratio (IV, Random, 95% CI)	0.91 [0.67, 1.23]

Analysis 3.1. Comparison 3: Partner status (with a partner vs not (reference)), Outcome 1: Assessment of prognostic factors around breast cancer diagnosis

Study or Subgroup	log[OR]	SE	Weight	Odds Ratio IV, Random, 95% CI
3.1.1 Unadjusted				
Blinder 2012[a]	-0.139	0.247	38.4%	0.87 [0.54 , 1.41]
Bouknight 2006[b]	0.017	0.286	28.6%	1.02 [0.58 , 1.78]
Johnsson 2007[c]	-0.361	0.495	9.6%	0.70 [0.26 , 1.84]
Rosenberg 2019[d]	-0.058	0.316	23.4%	0.94 [0.51 , 1.75]
Subtotal (Wald[e])			**100.0%**	**0.91 [0.67 , 1.23]**
Test for overall effect: Z = 0.63 (P = 0.53)				
Heterogeneity: Tau² (DL[f]) = 0.00; Chi² = 0.49, df = 3 (P = 0.92); I² = 0%				



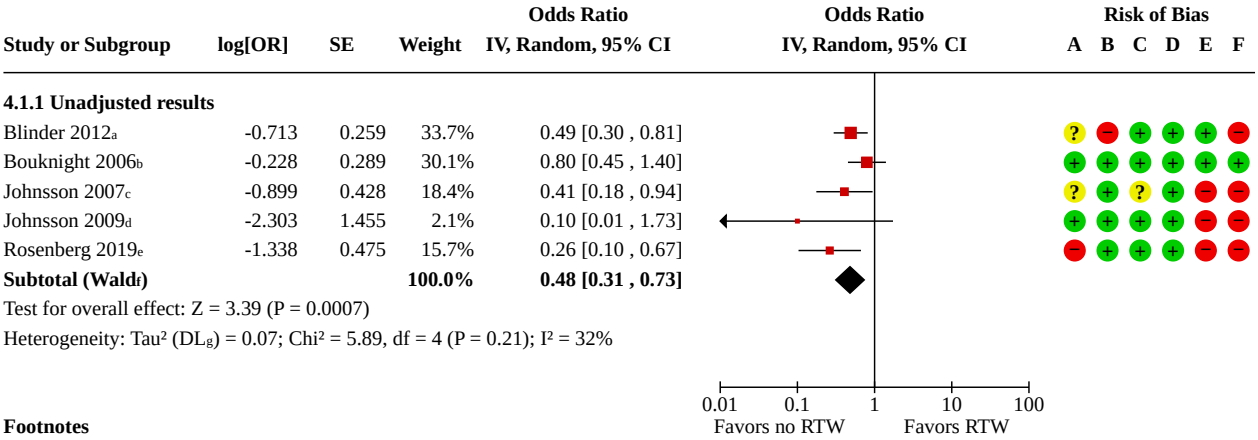
Footnotes

[a]275 participants
[b]416 participants
[c]217 participants
[d]772 participants
[e]CI calculated by Wald-type method.
[f]Tau² calculated by DerSimonian and Laird method.

Comparison 4. Chemotherapy (yes vs no (reference))

Outcome or subgroup title	No. of studies	No. of participants	Statistical method	Effect size
4.1 Assessment of prognostic factors around breast cancer diagnosis	5		Odds Ratio (IV, Random, 95% CI)	Subtotals only
4.1.1 Unadjusted results	5		Odds Ratio (IV, Random, 95% CI)	0.48 [0.31, 0.73]

Analysis 4.1. Comparison 4: Chemotherapy (yes vs no (reference)), Outcome 1: Assessment of prognostic factors around breast cancer diagnosis



Footnotes

[a]259 participants
[b]416 participants
[c]222 participants
[d]97 participants
[e]772 participants
[f]CI calculated by Wald-type method.
[g]Tau² calculated by DerSimonian and Laird method.

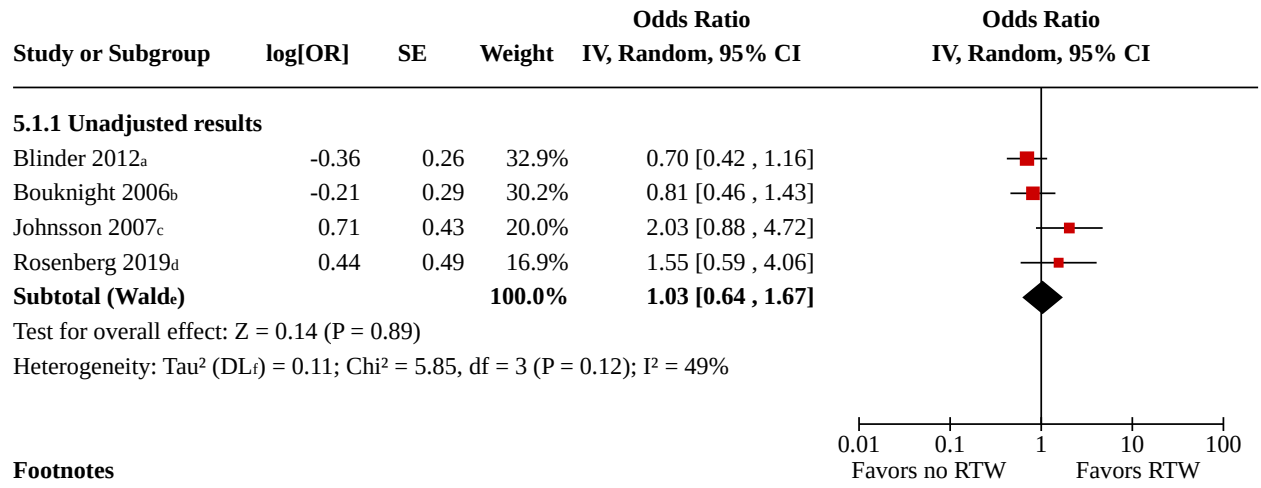
Risk of bias legend

(A) Study Participation
(B) Study Attrition
(C) Prognostic Factor Measurement
(D) Outcome Measurement
(E) Study Confounding
(F) Statistical Analysis and Reporting

Comparison 5. Radiotherapy (yes vs no (reference))

Outcome or subgroup title	No. of studies	No. of participants	Statistical method	Effect size
5.1 Assessment of prognostic factors around breast cancer diagnosis	4		Odds Ratio (IV, Random, 95% CI)	Subtotals only
5.1.1 Unadjusted results	4		Odds Ratio (IV, Random, 95% CI)	1.03 [0.64, 1.67]

Analysis 5.1. Comparison 5: Radiotherapy (yes vs no (reference)), Outcome 1: Assessment of prognostic factors around breast cancer diagnosis



Footnotes

[a]256 participants
[b]416 participants
[c]222 participants
[d]772 participants
[e]CI calculated by Wald-type method.
[f]Tau² calculated by DerSimonian and Laird method.

ADDITIONAL TABLES

Table 1. Overview of which article included which prognostic factor and whether it was possible to include it in the meta-analysis

Variable	Description of the variable (inclusion and exclusion criteria)	Included in the following studies	Included in the meta-analysis unadjusted[1]	Included in the meta-analysis adjusted[1]	Not included (reason)
Age	Age at breast cancer diagnosis or age at start of study	1. Blinder 2012 2. Bouknight 2006 3. Bradley 2014 4. Di Meglio 2020 5. Hedayati 2013 6. Jensen 2019 7. Johnsson 2007 8. Johnsson 2009 9. Landeiro 2018	1. Rosenberg 2019	1. Blinder 2012 2. Bouknight 2006 3. Bradley 2014 4. Noeres 2013	1. Blinder 2012 (not able to calculate unadjusted OR) 2. Bouknight 2006 (not able to calculate unadjusted OR) 3. Bradley 2014 (NR unadjusted OR) 4. Di Meglio 2020 (NR unadjusted; adjusted outcome NOT RTW) 5. Hedayati 2013 (prognostic factor assessed at end of adjuvant cancer treatment; not included in adjusted analysis) 6. Jensen 2019 (not able to calculate continuous association) 7. Johnsson 2007 (not able to calculate continuous association) 8. Johnsson 2009 (not able to calculate continuous association)

Table 1. Overview of which article included which prognostic factor and whether it was possible to include it in the meta-analysis *(Continued)*

		10. Noeres 2013 11. Roelen 2011 12. Rosenberg 2019			9. Landeiro 2018 age not included in adjusted analysis/prognostic factor assessed at end of adjuvant cancer treatment 10. Noeres 2013 (NR unadjusted) 11. Roelen 2011 (HR not able to combine with OR) 12. Rosenberg 2019 (outcome NOT RTW)
Educational level	Highest level of education at breast cancer diagnosis	1. Blinder 2012 2. Bouknight 2006 3. Bradley 2014 4. Cooper 2013 5. Di Meglio 2020 6. Hedayati 2013 7. Jensen 2019 8. Johnsson 2007 9. Landeiro 2018 10. Noeres 2013 11. Rosenberg 2019 12. Wolvers 2018	1. Blinder 2012 2. Bouknight 2006 3. Johnsson 2007 4. Rosenberg 2019	1. Blinder 2012 2. Bradley 2014 3. Johnsson 2007 4. Noeres 2013	1. Bouknight 2006 (different reference category) 2. Bradley 2014 (unadjusted NR) 3. Cooper 2013 (unadjusted analysis; HR not able to combine with OR; not included in adjusted analysis) 4. Di Meglio 2020 (unadjusted NR; adjusted outcome NOT RTW not able to recalculate) 5. Hedayati 2013 (prognostic factor assessed at end of adjuvant cancer treatment; not included in adjusted analysis) 6. Jensen 2019 (different reference category) 7. Landeiro 2018 (prognostic factor assessed at end of adjuvant cancer treatment) 8. Noeres 2013 (unadjusted NR) 9. Rosenberg 2019 (outcome NOT RTW; not able to recalculate) 10. Wolvers 2018 (wrong reference category; not included in adjusted analysis; HR not able to combine with OR)
Ethnicity	Including country of birth/migration background	1. Blinder 2012 2. Bouknight 2006 3. Bradley 2014 4. Johnsson 2009 5. Rosenberg 2019	1. Blinder 2012 2. Bouknight 2006 3. Rosenberg 2019	1. Blinder 2012 2. Bouknight 2006 3. Rosenberg 2019	1. Bradley 2014 (different reference category) 2. Johnsson 2009 (risk estimate NR)
Partner status	At breast cancer diagnosis. Partnered/married/intimate relationship also included	1. Blinder 2012 2. Bouknight 2006 3. Bradley 2014 4. Di Meglio 2020	1. Blinder 2012 2. Bouknight 2006 3. Johnsson 2007	1. Johnsson 2007	1. Blinder 2012 (not included in adjusted meta-analysis) 2. Bouknight 2006 (different reference category in adjusted meta-analysis) 3. Bradley 2014 (different reference category)

Table 1. Overview of which article included which prognostic factor and whether it was possible to include it in the meta-analysis *(Continued)*

		5. Hedayati 2013 6. Jensen 2019 7. Johnsson 2007 8. Noeres 2013 9. Rosenberg 2019	4. Rosenberg 2019		4. Di Meglio 2020 (NR unadjusted analysis; outcome NOT RTW; not able to recalculate adjusted analysis) 5. Hedayati 2013 (prognostic factor assessed at end of adjuvant cancer treatment; not included in adjusted analysis) 6. Jensen 2019 (RR not able to combine with OR) 7. Noeres 2013 (different reference category) 8. Rosenberg 2019 (outcome NOT RTW; not able to recalculate adjusted analysis)
Children living at home	Living with children < 18 at breast cancer diagnosis. NOT no. of children	1. Blinder 2012 2. Bouknight 2006 3. Bradley 2014 4. Di Meglio 2020 5. Johnsson 2007	1. Blinder 2012 2. Bouknight 2006 3. Johnsson 2007	1. Bradley 2014 2. Di Meglio 2020 3. Johnsson 2007	-
Income	Household income at breast cancer diagnosis. NOT personal income	1. Blinder 2012 2. Bouknight 2006 3. Bradley 2014 4. Di Meglio 2020 5. Jensen 2019	1. Bradley 2014 2. Jensen 2019	1. Blinder 2012 2. Di Meglio 2020 3. Jensen 2019	1. Bouknight 2006 (continuous)
Place of residence	Rural vs non-rural	-	-	-	-
Breast cancer stage	DCIS (in situ/ stage 0), I, II, III, IV	1. Blinder 2012 2. Bouknight 2006 3. Bradley 2007 4. Bradley 2013 5. Bradley 2014 6. Di Meglio 2020 7. Hedayati 2013	1. Blinder 2012 2. Rosenberg 2019	1. Bradley 2007 2. Bradley 2014	1. Blinder 2012 (not included in adjusted analysis) 2. Bouknight 2006 (other reference category) 3. Bradley 2013 (other reference category) 4. Di Meglio 2020 (unadjusted analysis NR; outcome NOT RTW; not able to recalculate adjusted analysis) 5. Hedayati 2013 (prognostic factor assessed at end of adjuvant cancer treatment) (different reference category)

Table 1. Overview of which article included which prognostic factor and whether it was possible to include it in the meta-analysis *(Continued)*

		8. Rosenberg 2019			6. Rosenberg 2019 (outcome NOT RTW; not able to recalculate adjusted analysis)
Tumor size		1. Jensen 2019 2. Noeres 2013		1. Noeres 2013	1. Noeres 2013 (unadjusted analysis NR) 2. Jensen 2019 (RR not able to combine with OR)
Lumpectomy	Also called breast- conserving surgery; no distinction between one-sided/two-sided	-	-	-	-
Mastectomy	Also called non-breast-conserving surgery; radical	1. Blinder 2012 2. Bouknight 2006 3. Di Meglio 2020 4. Jensen 2019 5. Hedayati 2013 6. Landeiro 2018 7. Rosenberg 2019;	1. Blinder 2012 2. Bouknight 2006 3. Rosenberg 2019	1. Bouknight 2006	1. Blinder 2012 (not included in adjusted analysis) 2. Di Meglio 2020 (unadjusted analysis NR; outcome NOT RTW; not able to recalculate) 3. Hedayati 2013 (prognostic factor assessed at end of adjuvant cancer treatment) 4. Jensen 2019 (RR not able to combine with HR) 5. Landeiro 2018 (prognostic factor assessed at end of adjuvant cancer treatment; different reference category) 6. Rosenberg 2019 (outcome NOT RTW; not able to recalculate adjusted analysis)
(Direct) breast reconstruction	Dichotomous	1. Blinder 2012 2. Landeiro 2018	1. Blinder 2012		1. Landeiro 2018 (prognostic factor assessed at end of adjuvant cancer treatment)
Sentinel lymph node dissection		1. Hedayati 2013	1. Hedayati 2013	1. Hedayati 2013	-
Axillary lymph node dissection		1. Blinder 2012 2. Di Meglio 2020 3. Johnsson 2009 4. Landeiro 2018	1. Blinder 2012 2. Johnsson 2009	1. Johnsson 2009	1. Landeiro 2018 (prognostic factor assessed at end of adjuvant cancer treatment) 2. Di Meglio 2020 (unadjusted analysis NR; outcome NOT RTW; not able to recalculate adjusted analysis)
Chemotherapy	Both adjuvant and neo-adjuvant	1. Blinder 2012 2. Bouknight 2006	1. Blinder 2012 2. Bouknight 2006	1. Blinder 2012 2. Bouknight 2006	1. Johnsson 2009 (not able to calculate log OR or SE) 2. Jensen 2019 (RR not able to combine with OR)

Table 1. Overview of which article included which prognostic factor and whether it was possible to include it in the meta-analysis *(Continued)*

		3. Jensen 2019 4. Johnsson 2007 5. Johnsson 2009 6. Landeiro 2018 7. Lilliehorn 2013 8. Di Meglio 2020 9. Rosenberg 2019	3. Johnsson 2007 4. Johnsson 2009 5. Rosenberg 2019	3. Johnsson 2007	3. Di Meglio 2020 (not included in unadjusted analysis; outcome NOT RTW; not able to recalculate in adjusted analysis) 4. Landeiro 2018 (prognostic factor assessed at end of adjuvant cancer treatment 5. Lilliehorn 2013 (prognostic factor assessed at end of adjuvant cancer treatment)
Radiotherapy	No distinction between regions	1. Blinder 2012 2. Bouknight 2006 3. Di Meglio 2020 4. Johnsson 2007 5. Johnsson 2009 6. Landeiro 2018 7. Rosenberg 2019	1. Blinder 2012 2. Bouknight 2006 3. Johnsson 2007 4. Rosenberg 2019	1. Bouknight 2006 2. Johnsson 2007 3. Johnsson 2009	1. Di Meglio 2020 (unadjusted NR; outcome NOT RTW; not able to recalculate adjusted analysis) 2. Johnsson 2009 (not able to calculate log OR and SE) 3. Landeiro 2018 (prognostic factor assessed at end of adjuvant cancer treatment) 4. Rosenberg 2019 (NOT RTW; outcome not able to recalculate adjusted analysis)
Hormone treatment	Also called endocrine therapy	1. Di Meglio 2020 2. Landeiro 2018 3. Jensen 2019	1. Jensen 2019	1. Jensen 2019	1. Landeiro 2018 (prognostic factor assessed at end of adjuvant cancer treatment) 2. Di Meglio 2020 (outcome NOT RTW)
Anti-HER2 therapy	Also called Herceptin/trastuzumab	1. Di Meglio 2020 2. Hedayati 2013 3. Landeiro 2018 4. Le Gall 2022	1. Le Gall 2022		1. Di Meglio 2020 (outcome NOT RTW) 2. Hedayati 2013 (prognostic factor assessed at end of adjuvant cancer treatment) 3. Landeiro 2018 (prognostic factor assessed at end of adjuvant cancer treatment) 4. Le Gall 2022 (only unadjusted analysis)
Targeted therapy	Including immunotherapy	-	-	-	-
Symptoms	Number of symptoms/side effects (measured continuously and/or dichotomously).	1. Hedayati 2013 2. Noeres 2013	1. Hedayati 2013	1. Hedayati 2013 2. Noeres 2013	-

Table 1. Overview of which article included which prognostic factor and whether it was possible to include it in the meta-analysis *(Continued)*

	e.g. EORTC-QLQ C30 symptom scale/Karnofsky Performance Status score				
General health	e.g. in categories (excellent, very good, good, fair, poor) NOT vitality	1. Bouknight 2006 2. Johnsson 2009	1. Bouknight 2006 2. Johnsson 2009	1. Johnsson 2009	1. Bouknight 2006 (not included in adjusted analysis)
Comorbidity	At breast cancer diagnosis. Number or dichotomous e.g Charlson comorbidity index	1. Blinder 2012 2. Bouknight 2006	1. Blinder 2012 2. Bouknight 2006	1. Blinder 2012	1. Bouknight 2006 (not included in adjusted analysis) 2. Di Meglio 2020 (outcome NOT RTW)
Premenopausal status	At breast cancer diagnosis. Dichotomous	1. Di Meglio 2020 2. Hedayati 2013	1. Hedayati 2013	1. Hedayati 2013	1. Di Meglio 2020 (unadjusted analysis NR; outcome NOT RTW)
Quality of life	Both breast-cancer-related quality of life as well as general quality of life. E.g. VAS scale, EORTC, SF-36/12	1. Porro 2019	1. Porro 2019	1. Porro 2019	-
Physical health	Both breast-cancer-related quality of life as well as general quality of life. E.g. VAS scale, EORTC, SF-36/12	1. Hedayati 2013 2. Porro 2019	1. Hedayati 2013 2. Porro 2019	1. Hedayati 2013	1. Hedayati 2013 (prognostic factor assessed at end of adjuvant cancer treatment) 2. Porro 2019 (not included in adjusted analysis)
Role functioning	Both breast-cancer-related quality of life and general quality of life. E.g. VAS-scale, EORTC, SF-36/12	1. Hedayati 2013 2. Porro 2019	1. Hedayati 2013 2. Porro 2019	1. Hedayati 2013	1. Hedayati 2013 (prognostic factor assessed at end of adjuvant cancer treatment) 2. Porro 2019 (not included in adjusted analysis)
Cognitive health		1. Porro 2019	1. Porro 2019		1. Porro 2019 (not included in adjusted analysis)
Social health		1. Hedayati 2013 2. Porro 2019	1. Hedayati 2013 2. Porro 2019	1. Hedayati 2013	1. Hedayati 2013 (prognostic factor assessed at end of adjuvant cancer treatment) 2. Porro 2019 (not included in adjusted analysis)

Table 1. Overview of which article included which prognostic factor and whether it was possible to include it in the meta-analysis *(Continued)*

Fatigue	e.g. MFI; no distinction between type of fatigue	1. Cooper 2013 2. Porro 2019 3. Wolvers 2018	1. Cooper 2013 2. Porro 2019 3. Wolvers 2018	1. Porro 2019 2. Wolvers 2018	1. Cooper 2013 (not included in adjusted analysis)
Depression/distress/ emotional health		1. Di Meglio 2020 2. Jensen 2019 3. Porro 2019	1. Jensen 2019 2. Porro 2019	1. Di Meglio 2020 2. Jensen 2019	1. Di Meglio 2020 (unadjusted analysis NR) 2. Porro 2019 (not included in adjusted analysis)
Anxiety/stress	e.g. CES-D; no distinction between type of anxiety	1. Di Meglio 2020	-	1. Di Meglio 2020	1. Di Meglio 2020 (unadjusted analysis NR)
History of sickness absence prior to breast cancer diagnosis	Any type of sickness absences with indication of comorbidity that impacts the ability to work	1. Bouknight 2006 2. Johnsson 2009	1. Bouknight 2006 2. Johnsson 2009	1. Bouknight 2006 2. Johnsson 2009	-
Self-esteem/self-efficacy		1. Wolvers 2018	1. Wolvers 2018	1. Wolvers 2018	-
Coping	General/disease or situation-specific coping	-	-	-	-
Work ability	Self-assessed work ability (e.g. WAI)	1. Wolvers 2018	1. Wolvers 2018	1. Wolvers 2018	-
Self-employed vs employee	Pre-breast cancer diagnosis	-	-	-	-
Permanent vs temporary employment contract	Pre-breast cancer diagnosis, including flexi vs fixed	-	-	-	-
Type of organization	Pre-breast cancer diagnosis, profit vs non-profit	-	-	-	-
Job category/job content	Pre-breast cancer diagnosis, blue (manual) vs	1. Blinder 2012 2. Bouknight 2006	1. Bouknight 2006	1. Bouknight 2006 2. Bradley 2014	1. Bradley 2014 (unadjusted analysis NR)

Table 1. Overview of which article included which prognostic factor and whether it was possible to include it in the meta-analysis *(Continued)*

	white (office) vs pink (HC)	3. Bradley 2014			
Physically demanding work	Pre-breast cancer diagnosis	1. Johnsson 2009 2. Bradley 2014	1. Johnsson 2009	1. Johnsson 2009 2. Bradley 2014	1. Bradley 2014 (unadjusted analysis NR)
Psychosocially demanding work	Pre-breast cancer diagnosis	-	-	-	-
Managerial position	Pre-breast cancer diagnosis, dichotomous	-	-	-	-
Working hours	Full-time vs part-time or continuous Number of contract hours (excluding number of actual working hours) Pre-breast cancer diagnosis and at time of assessment	1. Bradley 2014 2. Cooper 2013 3. Di Meglio 2020 4. Noeres 2013	1. Cooper 2013	1. Cooper 2013 2. Di Meglio 2020 3. Noeres 2013	1. Bradley 2014 (continuous; unadjusted analysis NR) 2. Di Meglio 2020 (unadjusted analysis NR) 3. Noeres 2013 (unadjusted analysis NR)
Shift work	Pre-breast cancer diagnosis, including irregular working hours	-	-	-	-
Work accommodation		1. Landeiro 2018	-	-	-
(Social) support supervisor/employer	Including accommodating employer	-	-	-	-
(Social) support colleagues		-	-	-	-
Employer discrimination		-	-	-	-

CES-D: Center for Epidemiologic Studies-Depression
DCIS: carcinoma in situ
EORTC-QLQ C30: European Organization for Research and Treatment for Cancer - Quality of Life Questionnaire);

HC: health care
HER-2: Human Epidermal growth factor Receptor 2
HR: Hazard Ratio
MFI: Multi Fatigue Inventory
NR: Not recorded
OR: Odds Ratio
RR: Relative Risk
RTW: return to work
SE: Standard Error
SF-36/12: Short Form-36/12
VAS: Visual Analogue Scale
vs: versus
WAI: Work Ability Index

APPENDICES

Appendix 1. Variable framework with description of each variable

Appendix 1a. Prespecified preliminary variable framework for prognostic factors assessed around breast cancer diagnosis including variable categories, subcategories and sub-subcategories, variables, and their (example) operationalizations

Variable category	Subcategory	Sub-subcategory	Variable	Description of the variable (inclusion and exclusion criteria)
Sociodemographic factors			Age	Age at breast cancer diagnosis or age at start of study
			Educational level	Highest level of education at breast cancer diagnosis
			Ethnicity	Including country of birth/migration background
			Partner status	At breast cancer diagnosis (partnered/married/intimate relationship also included)
			Children living at home	Living with children < 18 at breast cancer diagnosis. NOT no. of children
			Income	Household income at breast cancer diagnosis (not personal income)
			Place of residence	Rural versus non-rural
Breast cancer-related factors	**Breast cancer stage/tumor size**		Breast cancer stage	According to TNM classification DCIS (in situ/stage 0), I, II, III, IV.
			Tumor size	
	Breast cancer treatment (including planned breast cancer treatment)	**Breast surgery**	Lumpectomy	Also called breast-conserving surgery, with no distinction between one-sided/two sided
			Mastectomy	Also called non-breast-conserving surgery, radical

(Continued)

		Breast reconstruction	(Direct) breast reconstruction	Dichotomous
		Lymph node dissection	Sentinel lymph node dissection	
			Axillary lymph node dissection	
		(Neo)adjuvant treatment	Chemotherapy	Both adjuvant and neo-adjuvant
			Radiotherapy	No distinction between regions
			Hormone treatment	Also called endocrine therapy
			Anti-HER2 therapy	Also called Herceptin/trastuzumab
			Targeted therapy	Including immunotherapy
	Symptoms/side effects from breast cancer treatment		Symptoms	Number of symptoms/side effects (continuous/dichotomous), e.g. EORTC-QLQ C30 symptom scale/Karnofsky Performance Status score
Other health-related factors	**General health**		General health	E.g. in categories (excellent, very good, good, fair, poor); not vitality
	Comorbidity		Comorbidity	At breast cancer diagnosis. Number or dichotomous e.g. Charlson Comorbidity Index
	Premenopausal status		Premenopausal status	At breast cancer diagnosis (dichotomous)
	Quality of life		Quality of life	Both breast-cancer-related quality of life and general quality of life, e.g. VAS-scale, EORTC, SF-36/12
	Physical health		Physical health	
			Role functioning	
	Psychological health		Cognitive health	
			Social health	
			Fatigue	E.g. MFI; no distinction between type of fatigue
			Depression/distress/ Emotional health	
			Anxiety/stress	E.g. CES-D; no distinction between type of anxiety
	History of sickness absence		History of sickness absence prior to breast cancer diagnosis	Any type of sickness absence an indication of comorbidity that impacts the ability to work

(Continued)

Personal factors	**Psychosocial characteristics and behaviors**	Self-esteem/self-efficacy	
		Coping	General/disease or situation-specific coping
		Work ability	Self-assessed work ability (e.g. WAI)
Work-related factors	**Type of employment**	Self-employed versus employee	Pre-breast cancer diagnosis
		Permanent versus temporary employment contract	Pre-breast cancer diagnosis, including flexible versus fixed
	Organizational characteristics	Type of organization	Pre-breast cancer diagnosis (profit versus non-profit)
	Work content	Job category/job content	Pre-breast cancer diagnosis (blue (manual) versus white (office) versus pink (health care))
		Physically demanding work	Pre-breast cancer diagnosis
		Psychosocially demanding work	Pre-breast cancer diagnosis
		Managerial position	Pre-breast cancer diagnosis (dichotomous)
		Working hours	Full-time versus part-time or continuous Number of contract hours (excluding number of actual working hours) Pre-breast cancer diagnosis and at time of assessment
		Shift work	Pre-breast cancer diagnosis (including irregular working hours)
	Work support	Work accommodations	
		(Social) support supervisor/employer	Including whether employer was accommodating
		(Social) support colleagues	
		Employer discrimination	

Note: variables are based on variables that are frequently studied in a long list of 21 potentially relevant articles derived from a preliminary search in PubMed. It should be noted that the list of variables is not comprehensive from a theoretical perspective, but primarily based on previous empirical work.

Appendix 1b. Prespecified preliminary variable framework for prognostic factors assessed at the end of breast cancer treatment including variable categories, subcategories and sub-subcategories, variables, and their (example) operationalizations

Variable category	Subcategory	Sub-subcategory	Variable	Description of the variable (in- and exclusion criteria)
Sociodemographic factors			Age	Age at breast cancer diagnosis or age at start of study
			Educational level	Highest level of education at breast cancer diagnosis
			Ethnicity	Including country of birth/migration background
			Partner status	At breast cancer diagnosis. Partnered/married/intimate relationship also included
			Children living at home	Living with children aged less than 18 at breast cancer diagnosis (not number of children)
			Income	Household income at breast cancer diagnosis (not personal income)
			Place of residence	Rural versus non-rural
Breast cancer-related factors	**Breast cancer stage and tumor size**		Breast cancer stage	According to TNM classification DCIS (in situ/stage 0), I, II, III, IV.
			Tumor size	
	Breast cancer treatment (received cancer treatment only)	**Breast surgery**	Lumpectomy	Also called breast-conserving surgery with no distinction between one-sided/two-sided
			Mastectomy	Also called non-breast-conserving surgery, radical
		Breast reconstruction	(Direct) breast reconstruction	Dichotomous
		Lymph node dissection	Sentinel lymph node dissection	
			Axillary lymph node dissection	
		(Neo)adjuvant treatment	Chemotherapy	Both adjuvant and neo-adjuvant
			Radiotherapy	No distinction between regions
			Hormone treatment	Also called endocrine therapy
			Anti-HER2 therapy	Also called Herceptin/trastuzumab
			Targeted therapy	Including immunotherapy
	Symptoms/side effects from breast cancer treatment		Symptoms	Number of symptoms/side effects (continuous/dichotomous),

(Continued)

			e.g. EORTC-QLQ C30 symptom scale/Karnofsky Performance Status score
Other health-related factors	**General health**	General health	E.g. in categories (excellent, very good, good, fair, poor); not vitality
	Comorbidity	Comorbidity	At breast cancer diagnosis (number or dichotomous), e.g. Charlson Comorbidity Index
	Premenopausal status	Premenopausal status	At breast cancer diagnosis (dichotomous)
	Quality of life	Quality of life	Both breast-cancer-related quality of life and general quality of life, e.g. VAS-scale, EORTC, SF-36/12
	Physical health	Physical health	
		Role functioning	
	Psychological health	Cognitive health	
		Social health	
		Fatigue	E.g. MFI; no distinction between type of fatigue
		Depression/distress/emotional health	
		Anxiety/stress	E.g. CES-D; no distinction between type of anxiety
	History of sickness absence	History of sickness absence prior to breast cancer diagnosis	Any type of sickness absence indication of comorbidity that impacts the ability to work
Personal factors	**Psychosocial characteristics and behaviours**	Self-esteem/self-efficacy	
		Coping	General/disease or situation-specific coping
		Work ability	Self-assessed work ability (e.g. WAI)
Work-related factors	**Type of employment**	Self-employed versus employee	Pre-breast cancer diagnosis
		Permanent versus temporary employment contract	Pre-breast cancer diagnosis (including flexi versus fixed)
	Organizational characteristics	Type of organization	Pre-breast cancer diagnosis (profit versus non-profit)
	Work content	Job category/job content	Pre-breast cancer diagnosis (blue (manual) versus white (office) versus pink (health care))
			.

(Continued)

	Managerial position	Pre-breast cancer diagnosis (dichotomous)
	Working hours	Full-time versus part-time or continuous
		Number of contract hours (excluding number of actual working hours)
		Pre-breast cancer diagnosis and at time of assessment
	Shift work	Pre-breast cancer diagnosis (including irregular working hours)
Work support	Work accommodations	
	(Social) support supervisor/employer	Including whether employer was accommodating
	(Social) support colleagues	
	Employer discrimination	

Note: variables are based on variables that are frequently studied in a list of 21 potentially relevant articles derived from a preliminary search in PubMed. It should be noted that the list of variables is not comprehensive from a theoretical perspective, but based on previous empirical work.

Abbreviations:
CES-D: Center for Epidemiologic Studies - Depression
DCIS: Ductal carcinoma in situ
EORTC-QLQ C30: European Organization for Research and Treatment for Cancer - Quality of Life Questionnaire
HER-2: human epidermal growth factor receptor 2
MFI: Multi Fatigue Inventory
SF-36/12: Short Form-36/12
TNM: Classification of Malignant Tumors
VAS: Visual Analogue Scale
WAI: Work Ability Index

Appendix 2. Preliminary study selection

1. Bouknight RR, Bradley CJ, Luo Z. Correlates of return to work for breast cancer survivors. Journal of Clinical Oncology 2006; 4(3):345-53.
2. Johnsson A, Fornander T, Rutqvist LE, Olsson M. Work status and life changes in the first year after breast cancer diagnosis. Work 2011;38(4):337-46.
3. Hedayati E, Johnsson A, Alinaghizadeh H, Schedin A, Nyman H, Albertsson M. Cognitive, psychosocial, somatic and treatment factors predicting return to work after breast cancer treatment. Scandinavian Journal of Caring Science 2013; 27(2):380-7.
4. Noeres D, Park-Simon TW, Grabow J, Sperlich S, Koch-Gießelmann H, Jaunzeme J, et al. Return to work after treatment for primary breast cancer over a 6-year period: results from a prospective study comparing patients with the general population. Supportive Care in Cancer 2013; 21(7):1901-9.
5. Porro B, Michel A, Zinzindohoué C, Bertrand P, Monrigal E, Trentini F, et al. Quality of life, fatigue and changes therein as predictors of return to work during breast cancer treatment. Scandinavian Journal of Caring Science 2019;33(2):467-477.
6. Carlsen K, Ewertz M, Dalton SO, Badsberg JH, Osler M. Unemployment among breast cancer survivors. Scandinavian Journal of Public Health 2014;42(3):319-28.

Appendix 3. All search strategies

Appendix 5 - All search strategies

MEDLINE via Ovid (1946 to 20 January 2023)

1	exp breast neoplasms/
2	exp breast/ or (breast* or mamma*).ti,ab,kf.
3	exp neoplasms/ or (cancer* or neoplas* or carcinom* or carcinosarcoma* or oncolog* or malignan* or tumor* or tumour* or leukemi* or sarcoma* or lymphom* or melanoma* or blastoma*).ti,ab,kf.
4	2 and 3
5	1 or 4
6	exp Absenteeism/ or exp Convalescence/ or exp Recovery of Function/ or exp Sick Leave/ or exp Disability Evaluation/ or exp Work Capacity Evaluation/ or exp Rehabilitation, Vocational/ or exp Return to Work/ or exp Sickness Impact Profile/ or exp Occupational Health/ or employment/ or unemployment/ or neoplasms/rh or exp occupations/ or occupational medicine/ or occupational health services/ or rehabilitation/
7	((work or working) adj3 (absence or ability or activity or capacity or disability or incapacity or incapability or inhibition or retention or rehabilitation or productivity or function* or participation or performance or status)).ti,ab,kf.
8	(recovery adj3 function).ti,ab,kf.
9	(absente* or employment or employability or employable or employee* or unemployment or unemployed or return-to-work or rtw or workability or medical-leave or sick-leave or disability-leave or disability-absence or convalescen* or sick-day* or sick-listed* or sicklisted or ilness-day* or reintegration or reemployment or job-reentry or presenteeism or sickness-absence or work-day-loss or work-time-loss or occupation or vocational-rehabilitation).ti,ab,kf.
10	6 or 7 or 8 or 9
11	5 and 10
12	11 not (exp animals/ not humans.sh.)

Embase.com (1947 to 20 January 2023)

#10	#9 NOT 'conference abstract'/it
#9	#8 NOT ([animals]/lim NOT [humans]/lim)
#8	#4 AND #7
#7	#5 OR #6
#6	(((work OR working) NEAR/3 (absence OR ability OR activity OR capacity OR disability OR incapacity OR incapability OR inhibition OR retention OR rehabilitation OR productivity OR function* OR participation OR performance OR status)):ti,ab,kw) OR ((recovery NEAR/3 function):ti,ab,kw) OR absente*:ti,ab,kw OR employment:ti,ab,kw OR employability:ti,ab,kw OR employable:ti,ab,kw OR employee*:ti,ab,kw OR unemployment:ti,ab,kw OR unemployed:ti,ab,kw OR 'return to work':ti,ab,kw OR rtw:ti,ab,kw OR workability:ti,ab,kw OR 'medical leave':ti,ab,kw

(Continued)

	OR 'sick leave':ti,ab,kw OR 'disability leave':ti,ab,kw OR 'disability absence':ti,ab,kw OR convalescen*:ti,ab,kw OR 'sick day*':ti,ab,kw OR 'sick listed*':ti,ab,kw OR sicklisted:ti,ab,kw OR 'ilness day*':ti,ab,kw OR reintegration:ti,ab,kw OR reemployment:ti,ab,kw OR 'job reentry':ti,ab,kw OR presenteeism:ti,ab,kw OR 'sickness absence':ti,ab,kw OR 'work day loss':ti,ab,kw OR 'work time loss':ti,ab,kw OR occupation:ti,ab,kw OR 'vocational rehabilitation':ti,ab,kw
#5	'absenteeism'/exp OR 'convalescence'/exp OR 'work capacity'/exp OR 'work resumption'/exp OR 'vocational rehabilitation'/exp OR 'return to work'/exp OR 'sickness impact profile'/exp OR 'medical leave'/exp OR 'employment'/exp OR 'employment status'/exp OR 'unemployment'/exp OR 'work disability'/exp
#4	#1 OR (#2 AND #3)
#3	'neoplasm'/exp OR cancer*:ti,ab,kw OR neoplas*:ti,ab,kw OR carcinom*:ti,ab,kw OR carcinosarcoma*:ti,ab,kw OR oncolog*:ti,ab,kw OR malignan*:ti,ab,kw OR tumor*:ti,ab,kw OR tumour*:ti,ab,kw OR leukemi*:ti,ab,kw OR sarcoma*:ti,ab,kw OR lymphom*:ti,ab,kw OR melanoma*:ti,ab,kw OR blastoma*:ti,ab,kw
#2	'breast'/exp OR breast*:ti,ab,kw OR mamma*:ti,ab,kw
#1	'breast tumor'/exp

CINAHL EBSCOhost with Full Text (1961 to 20 January 2023)

#	Query	Limiters/Expanders	Last Run Via
S7	S6 NOT (MH "Animals" NOT MH "Human")	Expanders - Apply equivalent subjects	Interface - EBSCOhost Research Databases
		Search modes - Boolean/Phrase	Search Screen - Advanced Search
			Database - CINAHL
S6	S4 AND S5	Expanders - Apply equivalent subjects	Interface - EBSCOhost Research Databases
		Search modes - Boolean/Phrase	Search Screen - Advanced Search
			Database - CINAHL
S5	MH ("Employment+" OR "Employment Status" OR "Unemployment" OR "Sick Leave" OR "Sickness Impact Profile" OR "Absenteeism" OR "Rehabilitation, Vocational+" OR "Job Re-Entry") OR TI (((work OR working) N3 (absence OR ability OR activity OR capacity OR disability OR incapacity OR incapability OR inhibition OR retention OR rehabilitation OR productivity OR function* OR participation OR performance OR status)) OR (recovery N3 function) OR (absente* OR employment OR employability OR employable OR employee* OR unemployment OR unemployed OR return-to-work OR rtw OR workability OR medical-leave OR sick-leave OR disability-leave OR disability-ab-	Expanders - Apply equivalent subjects	Interface - EBSCOhost Research Databases
		Search modes - Boolean/Phrase	Search Screen - Advanced Search
			Database - CINAHL

(Continued)

	sence OR convalescen* OR sick-day* OR sick-listed* OR sick-listed OR ilness-day* OR reintegration OR reemployment OR job-reentry OR presenteeism OR sickness-absence OR work-day-loss OR work-time-loss OR occupation OR vocational-rehabilitation)) OR AB (((work OR working) N3 (absence OR ability OR activity OR capacity OR disability OR incapacity OR incapability OR inhibition OR retention OR rehabilitation OR productivity OR function* OR participation OR performance OR status)) OR (recovery N3 function) OR (absente* OR employment OR employability OR employable OR employee* OR unemployment OR unemployed OR return-to-work OR rtw OR workability OR medical-leave OR sick-leave OR disability-leave OR disability-absence OR convalescen* OR sick-day* OR sick-listed* OR sicklisted OR ilness-day* OR reintegration OR reemployment OR job-reentry OR presenteeism OR sickness-absence OR work-day-loss OR work-time-loss OR occupation OR vocational-rehabilitation)) OR KW (((work OR working) N3 (absence OR ability OR activity OR capacity OR disability OR incapacity OR incapability OR inhibition OR retention OR rehabilitation OR productivity OR function* OR participation OR performance OR status)) OR (recovery N3 function) OR (absente* OR employment OR employability OR employable OR employee* OR unemployment OR unemployed OR return-to-work OR rtw OR workability OR medical-leave OR sick-leave OR disability-leave OR disability-absence OR convalescen* OR sick-day* OR sick-listed* OR sicklisted OR ilness-day* OR reintegration OR reemployment OR job-reentry OR presenteeism OR sickness-absence OR work-day-loss OR work-time-loss OR occupation OR vocational-rehabilitation))		
S4	S1 OR (S2 AND S3)	Expanders - Apply equivalent subjects	Interface - EBSCOhost Research Databases
		Search modes - Boolean/Phrase	Search Screen - Advanced Search
			Database - CINAHL
S3	((MH "Neoplasms+") OR TI (cancer* OR neoplas* OR carcinom* OR carcinosarcoma* OR oncolog* OR malignan* OR tumor* OR tumour* OR leukemi* OR sarcoma* OR lymphom* OR melanoma* OR blastoma*) OR AB (cancer* OR neoplas* OR carcinom* OR carcinosarcoma* OR oncolog* OR malignan* OR tumor* OR tumour* OR leukemi* OR sarcoma* OR lymphom* OR melanoma* OR blastoma*) OR KW (cancer* OR neoplas* OR carcinom* OR carcinosarcoma* OR oncolog* OR malignan* OR tumor* OR tumour* OR leukemi* OR sarcoma* OR lymphom* OR melanoma* OR blastoma*))	Expanders - Apply equivalent subjects	Interface - EBSCOhost Research Databases
		Search modes - Boolean/Phrase	Search Screen - Advanced Search
			Database - CINAHL
S2	((MH "Breast+") OR TI (breast* OR mamma*) OR AB (breast* OR mamma*) OR KW (breast* OR mamma*))	Expanders - Apply equivalent subjects	Interface - EBSCOhost Research Databases
		Search modes - Boolean/Phrase	Search Screen - Advanced Search
			Database - CINAHL

(Continued)

S1	(MH "Breast Neoplasms+")	Expanders - Apply equivalent subjects	Interface - EBSCOhost Research Databases
		Search modes - Boolean/Phrase	Search Screen - Advanced Search
			Database - CINAHL

PsycINFO EBSCOhost (1967 to 20 January 2023)

#	Query	Limiters/Expanders	Last Run Via
S7	S6 NOT (PO Animal NOT PO Human)	Expanders - Apply equivalent subjects	Interface - EBSCOhost Research Databases
		Search modes - Boolean/Phrase	Search Screen - Advanced Search
			Database - APA PsycInfo
S6	S4 AND S5	Expanders - Apply equivalent subjects	Interface - EBSCOhost Research Databases
		Search modes - Boolean/Phrase	Search Screen - Advanced Search
			Database - APA PsycInfo
S5	(DE "Employment Status" OR DE "Employability" OR DE "Employment History" OR DE "Job Loss" OR DE "Reemployment" OR DE "Self-Employment" OR DE "Unemployment" OR DE "Vocational Rehabilitation" OR DE "Supported Employment" OR DE "Vocational Evaluation" OR DE "Work Adjustment Training" OR DE "Employee Absenteeism" OR DE "Employee Efficiency" OR DE "Employee Leave Benefits" OR DE "Employee Productivity") OR TI (((work OR working) N3 (absence OR ability OR activity OR capacity OR disability OR incapacity OR incapability OR inhibition OR retention OR rehabilitation OR productivity OR function* OR participation OR performance OR status)) OR (recovery N3 function) OR (absente* OR employment OR employability OR employable OR employee* OR unemployment OR unemployed OR return-to-work OR rtw OR workability OR medical-leave OR sick-leave OR disability-leave OR disability-absence OR convalescen* OR sick-day* OR sick-listed* OR sick-listed OR ilness-day* OR reintegration OR reemployment OR job-reentry OR presenteeism OR sickness-absence OR work-day-loss OR work-time-loss OR occupation OR vocational-rehabilitation)) OR AB (((work OR working) N3 (absence OR ability OR activity OR capacity OR disability OR incapacity OR incapability OR inhibition OR retention OR rehabilitation OR produc-	Expanders - Apply equivalent subjects	Interface - EBSCOhost Research Databases
		Search modes - Boolean/Phrase	Search Screen - Advanced Search
			Database - APA PsycInfo

(Continued)

	tivity OR function* OR participation OR performance OR status)) OR (recovery N3 function) OR (absente* OR employment OR employability OR employable OR employee* OR unemployment OR unemployed OR return-to-work OR rtw OR workability OR medical-leave OR sick-leave OR disability-leave OR disability-absence OR convalescen* OR sick-day* OR sick-listed* OR sicklisted OR ilness-day* OR reintegration OR reemployment OR job-reentry OR presenteeism OR sickness-absence OR workday-loss OR work-time-loss OR occupation OR vocational-rehabilitation)) OR KW (((work OR working) N3 (absence OR ability OR activity OR capacity OR disability OR incapacity OR incapability OR inhibition OR retention OR rehabilitation OR productivity OR function* OR participation OR performance OR status)) OR (recovery N3 function) OR (absente* OR employment OR employability OR employable OR employee* OR unemployment OR unemployed OR return-to-work OR rtw OR workability OR medical-leave OR sick-leave OR disability-leave OR disability-absence OR convalescen* OR sick-day* OR sick-listed* OR sicklisted OR ilness-day* OR reintegration OR reemployment OR job-reentry OR presenteeism OR sickness-absence OR workday-loss OR work-time-loss OR occupation OR vocational-rehabilitation))		
S4	S1 OR (S2 AND S3)	Expanders - Apply equivalent subjects	Interface - EBSCOhost Research Databases
		Search modes - Boolean/Phrase	Search Screen - Advanced Search
			Database - APA PsycInfo
S3	((DE "Neoplasms") OR TI (cancer* OR neoplas* OR carcinom* OR carcinosarcoma* OR oncolog* OR malignan* OR tumor* OR tumour* OR leukemi* OR sarcoma* OR lymphom* OR melanoma* OR blastoma*) OR AB (cancer* OR neoplas* OR carcinom* OR carcinosarcoma* OR oncolog* OR malignan* OR tumor* OR tumour* OR leukemi* OR sarcoma* OR lymphom* OR melanoma* OR blastoma*) OR KW (cancer* OR neoplas* OR carcinom* OR carcinosarcoma* OR oncolog* OR malignan* OR tumor* OR tumour* OR leukemi* OR sarcoma* OR lymphom* OR melanoma* OR blastoma*))	Expanders - Apply equivalent subjects	Interface - EBSCOhost Research Databases
		Search modes - Boolean/Phrase	Search Screen - Advanced Search
			Database - APA PsycInfo
S2	((DE "Breast") OR TI (breast* OR mamma*) OR AB (breast* OR mamma*) OR KW (breast* OR mamma*))	Expanders - Apply equivalent subjects	Interface - EBSCOhost Research Databases
		Search modes - Boolean/Phrase	Search Screen - Advanced Search
			Database - APA PsycInfo
S1	DE "Breast Neoplasms"	Expanders - Apply equivalent subjects	Interface - EBSCOhost Research Databases

(Continued)

	Search modes - Boolean/Phrase	Search Screen - Advanced Search
		Database - APA PsycInfo

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#1 AND #2
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TS=((work OR working) NEAR/3 (absence OR ability OR activity OR capacity OR disability OR incapacity OR incapability OR inhibition OR retention OR rehabilitation OR productivity OR function* OR participation OR performance OR status)) OR TS=(recovery NEAR/3 function) OR TS=(absente* OR employment OR employability OR employable OR employee* OR unemployment OR unemployed OR return-to-work OR rtw OR workability OR medical-leave OR sick-leave OR disability-leave OR disability-absence OR convalescen* OR sick-day* OR sick-listed* OR sicklisted OR ilness-day* OR reintegration OR reemployment OR job-reentry OR presenteeism OR sickness-absence OR work-day-loss OR work-time-loss OR occupation OR vocational-rehabilitation)
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TS=((breast* OR mamma*) AND (cancer* OR neoplas* OR carcinom* OR carcinosarcoma* OR oncolog* OR malignan* OR tumor* OR tumour* OR leukemi* OR sarcoma* OR lymphom* OR melanoma* OR blastoma*))

The Cochrane Central Register of Controlled Trials (CENTRAL; XX to 2023, Issue 1)

ID	Search
#1	((breast* OR mamma*) AND (cancer* OR neoplas* OR carcinom* OR carcinosarcoma* OR oncolog* OR malignan* OR tumor* OR tumour* OR leukemi* OR sarcoma* OR lymphom* OR melanoma* OR blastoma*)):ti,ab,kw
#2	((work OR working) NEAR/3 (absence OR ability OR activity OR capacity OR disability OR incapacity OR incapability OR inhibition OR retention OR rehabilitation OR productivity OR function* OR participation OR performance OR status)):ti,ab,kw OR (recovery NEAR/3 function):ti,ab,kw OR (absente* OR employment OR employability OR employable OR employee* OR unemployment OR unemployed OR return-to-work OR rtw OR workability OR medical-leave OR sick-leave OR disability-leave OR disability-absence OR convalescen* OR sick-day* OR sick-listed* OR sicklisted OR il-

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	ness-day* OR reintegration OR reemployment OR job-reentry OR presenteeism OR sickness-absence OR work-day-loss OR work-time-loss OR occupation OR vocational-rehabilitation):ti,ab,kw
#3	#1 AND #2

Appendix 4. Overview of factors considered in the adjusted analysis

Appendix 2. Overview of factors considered in the adjusted analysis.

Analysis number	Title	Study ID	Factors considered in the adjusted analysis
1.1	Age (increase in age)	Blinder 2012	Annual household income, race/ethnicity, education, comorbid conditions, chemotherapy
		Bouknight 2006	Household income, race, education, marital status, fair/poor health, stage, mastectomy, radiation therapy, chemotherapy, sick-leave, job type, data analysis, heavy lifting, accommodation, cancer discrimination
		Bradley 2014	Race, marital status, education, annual income, children < 18 years, cancer stage, treatment, baseline weekly hours worked, job satisfaction score, occupation type, sick leave, job characteristics, firm type, firm size, hours spent per day sitting
		Noeres 2013	Education, severity of difficulties at work before surgery, cohabitation, stage, severity of side effects of treatment, participation in inhouse rehabilitation
2.1	Educational level (low vs high (reference)	Blinder 2012	Age, annual household income, race/ethnicity, comorbid conditions, chemotherapy
		Bradley 2014	Race, marital status, annual income, children < 18 years, age, cancer stage, treatment, baseline weekly hours worked, job satisfaction score, occupation type, sick leave, job characteristics, firm type, firm size, hours spent per day sitting
		Johnsson 2007	Chemotherapy, radiotherapy, endocrine treatment
		Noeres 2013	Age, severity of difficulties at work before surgery, cohabitation, stage, severity of side effects of treatment, participation in inhouse rehabilitation

HISTORY

Protocol first published: Issue 2, 2022

CONTRIBUTIONS OF AUTHORS

ST and AdW were involved in the conception of the review.

ST, AdW, MG, PC, EF, HO, SD and AdB were involved in the design of the review.

ST and AdW co-ordinated the review.

ST and PC were involved in the search strategy.

ST, AdW, MG, PC, EF, SD and AdB were involved in selecting articles for inclusion in the review.

ST, AdW, PC and AdB were involved in data extraction for this review.

ST, AdW, PC, and AdB were involved in assessment of the risk of bias in the included studies.

ST, AdW, and PC were involved in the analysis of data and the assessment of the certainty of evidence.

ST, AdW, MG, PC, EF, HO, SD and AdB were involved in the interpretation of the results.

ST, AdW and MG were involved in the writing of the review.

ST, AdW, MG, PC, EF, HO, SD and AdB all read and approved the final version of the manuscript.

DECLARATIONS OF INTEREST

ST: none known.

AdW: none known.

MG: none known.

PC: none known.

EF: none known.

HO: none known.

SD: none known.

AdB: none known.

None of the authors were involved in screening, inclusion, data extraction, RoB assessment and GRADE assessment of their own studies.

SOURCES OF SUPPORT

Internal sources

- Amsterdam UMC, Location AMC, Location VUmc, Netherlands

  Personnel

External sources

- Financial support from the Amsterdam Public Health Research Institute, Netherlands

  www.amsterdamumc.org/en/research/institutes/amsterdam-public-health.htm

DIFFERENCES BETWEEN PROTOCOL AND REVIEW

In the protocol (Tamminga 2022), it was proposed to assess heterogeneity by "calculating I^2 statistics and visual inspection of the forest plots. A random-effects model will be applied when there will be evidence of statistical heterogeneity, as indicated by an I^2 value greater than 50% (Higgins 2003). In case of heterogeneity with an I^2 value greater than 70%, we will conduct no meta-analysis." We now assessed heterogeneity in line with GRADE guidance (Schünemann 2013). We deemed an I^2 value of more than 50% to indicate considerable heterogeneity. When we identified heterogeneity, we tried to understand the reasons for the heterogeneity by exploring the options outlined in the Cochrane Handbook (Higgins 2022) and we investigated the presence of outlying studies. When the heterogeneity could not be explained, we downgraded the certainty of the evidence.

In the protocol (Tamminga 2022), we stated that "we will pool ORs/RRs with HRs in the same meta-analysis as we expect similar association for return to work (yes/no) versus time to return to work". Based on the advice of the Cochrane methods groups, we have not combined HRs, ORs and RRs in the same meta-analysis.

In the protocol (Tamminga 2022), we stated that "When study samples overlap by more than 50%, the study has only been included when additional factors have been studied." We have added to this criterion: "that those studies were administered under one study ID."

As measures of associations to be extracted, we have added: "Univariate linear regression coefficient for the association between prognostic factor and the outcome time to return to work operationalized as continuous outcome, with 95% confidence interval/standard error if applicable." as this appeared a relevant measure of association during data extraction.

In the protocol (Tamminga 2022), we stated that: "Missing measures of association will be requested by contacting the corresponding author of the original study, for instance, when “no association” has been reported. In the case that we do not receive an author response, we will make assumptions to calculate data." We have now added that we calculated the measure of association as sufficient data was provided: "Missing measures of association were requested by contacting the corresponding author of the original study, for instance, when “no association” was reported without providing the measure of association. In case [If] we did not receive an author response, and the raw data were available, we calculated the measure of association based on the information provided in the article."

In the case of multiple outcomes (e.g. partial and full return to work), only partial return to work has been extracted.

In the protocol (Tamminga 2022), we stated that: "It should be noted that for the assessment around breast cancer diagnosis various study designs may apply (Appendix 3; study designs: 1, 2a, 2b and 3). For instance, if and how future adjuvant cancer treatment has been assessed may differ across these four study designs (i.e. 1, 2a, 2b and 3). However, in the main data analysis, we will not distinguish between these four study designs that assessed prognostic factors around breast cancer diagnosis as we assume that these factors will be relatively similarly associated with the primary outcome. We will test this assumption in a sensitivity analysis (see data synthesis)." Since we were unable to test this assumption, we omitted this explanation in the text and omitted this appendix.