

**Efficacy of Return-to-Work Occupational Therapy Interventions for Cancer Patients: A
Systematic Review**

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Abstract

Importance: Cancer survivors often experience emotional and physical barriers that can impact their ability to return to work. Providing early education and occupational therapy interventions can support successful post-cancer living and as well as enhance employment participation.

Objective: To identify, evaluate, and synthesize the current literature concerning the impact of occupational therapy interventions to help determine the efficacy in relation to return to work outcome among cancer survivors.

Data Sources: A literature search occurred between May 15, 2026 and May 28, 2026. Follow up searches were conducted on May 31, 2026. Databases included CINAHL Complete, Medline, and Academic Search Complete using Hawai'i Pacific University's online library databases. Search terms included *return-to-work*, *cancer*, *cancer care continuum*, *OT*, *intervention*, *adults*, as well as combinations of these terms.

Study Selection and Data Collection: This systematic review followed the Preferred Reporting Items for Systematic Reviews and Meta-Analyses (PRISMA) guidelines. Published studies on cancer survivors returning to work were included in the systematic review. Data from presentations, non-peer reviewed literature, and dissertations were excluded.

Findings: Six studies were included: one Level III study, one Level IIIA study, three Level IV studies, and one Level V study according to the American Occupational Therapy Association's Levels of Evidence. The outcomes of these studies indicate that early education and living with family can make a difference on patients' ability to work post-treatment.

Conclusion and Relevance: Occupational therapy interventions are effective for cancer patients in their ability to return to work. Work is a meaningful occupation that many patients are eager to return to, as it allows financial stability and overall a better quality of life

Key words: Cancer survivors, return to work, occupational therapy, early education, living at home, health-related quality of life

Efficacy of Return-to-Work Occupational Therapy Interventions for Cancer Patients: A Systematic Review

Early, proactive education for cancer patients and caregivers can help with return to work. This topic is important because it addresses approaches to improving the Health Related Quality of Life (HRQoL). Successful return to work (RTW) is very complex; it's not just about physical health recovery. It is very much dependent on other factors including psychosocial factors, workplace accommodations, social support systems, and systemic financial safety nets (Maheu et al., 2025). Specific occupational therapy interventions like early communication, proactive workplace assessments, and validated screening tools are very helpful in bridging the gap between cancer survivorship and sustainable employment (Carlson et al., 2021). A cancer diagnosis has a devastating effect on a person's ability to maintain employment. Research indicates that approximately 92% of cancer survivors (CS) who lose employment, lose it within 15 months of being diagnosed. Among those unemployed CS, only 30% of them found a job within 2 years (Bellagamba et al., 2021). CS have a loss of financial independence and additionally lose a sense of identity, accomplishment, productivity, and a return to normality and overall wellness (Carlson et al., 2021). CS who are able to continue working have a much better measured HRQoL than those who do not, or even those who have reduced work/employment (Lin et al., 2024). The financial burden of being unemployed is strongly associated with severe anxiety, depression, poor treatment adherence, and much lower HRQoL scores (Carlson et al., 2021).

Those CS who live with caregivers have higher measured levels of HRQoL. Spouses and family members serve as crucial emotional anchors who help with things such as companionship, physical assistance with daily tasks, and emotional support during and after treatment (Lin et al.,

2024). Additionally, the immediate environment plays a big part in HRQoL for CS (Lin et al., 2024). Caregivers are very important in helping communication with the CS healthcare team and implementing lifestyle changes and possible adaptations including home modification (Carlson et al., 2021; Lin et al., 2024). CS who do not have caregivers are seen to struggle with returning to work and life after treatment. They are faced with emotional and physical barriers and have a critical need for specific clinical support systems to improve their overall well-being and HRQoL (Carlson et al., 2021; Lin et al., 2024).

Early education on how the treatment process will impact the ability of CS to work based on their diagnosis is important (Carlson et al., 2021). CS have reported that if they had been given clear information early on from their healthcare team about what cancer treatment may entail, they would have been better equipped and could have planned more effectively for the impacts on different components of their life (Bellagamba et al., 2021; Carlson et al., 2021). When CS are given quality communication early in the process, they feel more empowered to navigate the issues around finances and employment stress (Carlson et al., 2021; Maheu et al., 2025).

These studies demonstrate that being employed and having family support are clear indicators of HRQoL for CS. There is still a need to systematically review the specifics on how early, proactive educational interventions can be effectively delivered to support both the survivor and their support systems/caregivers in the RTW process.

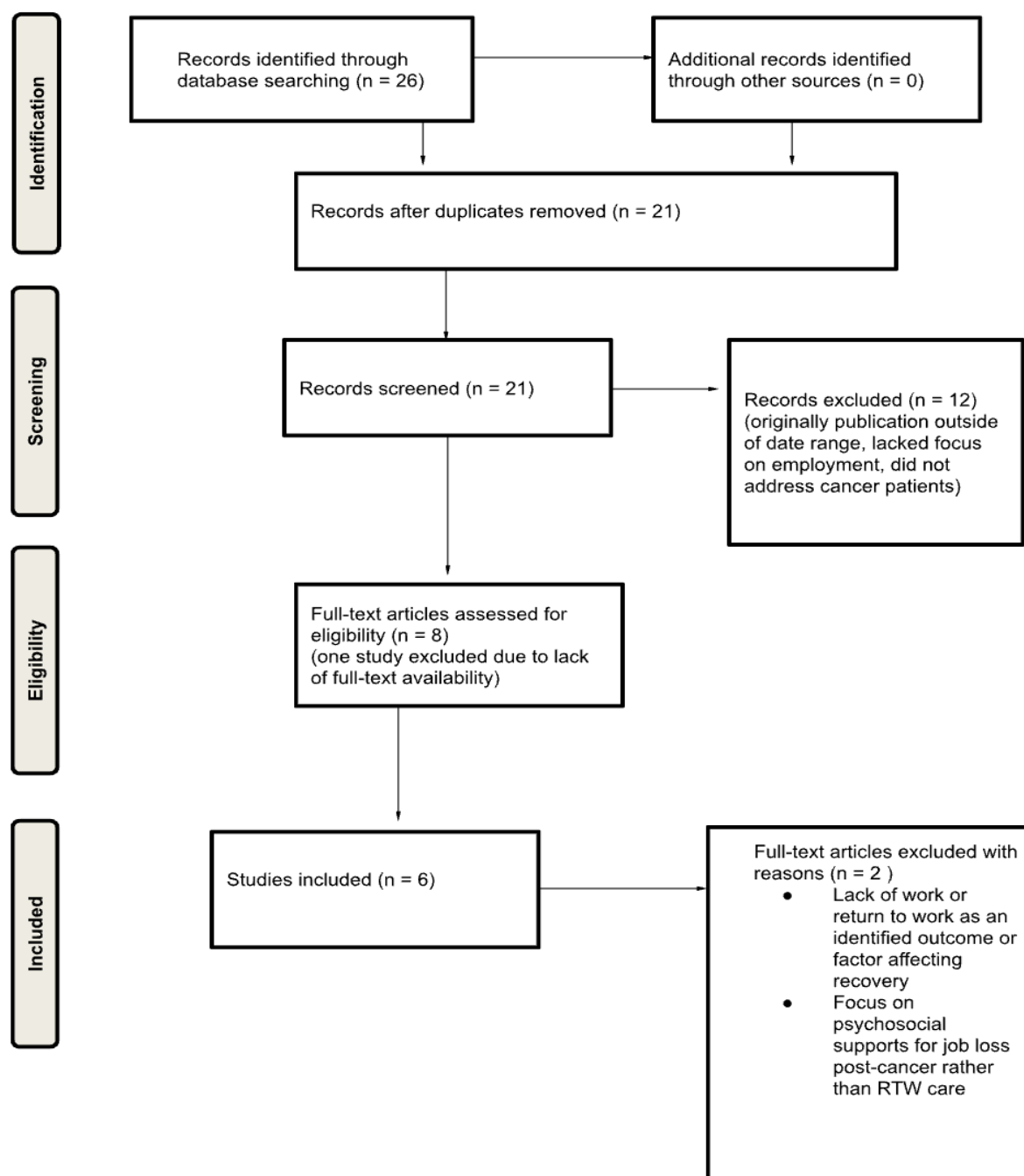
The purpose of this systematic review was to examine and analyze the strength of the evidence for early educational interventions and caregiver-inclusive occupational therapy programs in improving successful return-to-work rates and health-related quality of life among

working-age cancer survivors. This review also aimed to understand important factors that inform interventions and treatment planning.

Method

The systematic review adhered to the Preferred Reporting Items for Systematic Reviews and Meta-Analyses (PRISMA) and incorporated recommended processes for conducting a systematic review. The guiding research question for this systematic review was: Which OT interventions are most effective to support return-to-work for adults within the cancer care continuum?

A broad search of the literature occurred between May 15, 2026 and May 28, 2026. An additional search was conducted May 31, 2026 to ensure all relevant research was included. The inclusion criteria for studies in this systematic review were as follows: peer-reviewed, published in English, studies related to cancer care, return to work as an outcome, included occupational therapy, and dated between 2021-2026. Exclusion criteria, in addition to those studies that did not meet the inclusion criteria, included articles that were systematic reviews, scoping reviews, dissertations, and conference proceedings. A search for relevant literature was completed using electronic databases: CINAHL Complete, Academic Search Complete, and Medline through Hawai'i Pacific University's online library database. Search terms included return-to-work, cancer, cancer care continuum, OT, interventions, adults as well as combinations of these terms. Appendix A provides the search terms used for this systematic review. The initial search included 6 articles related to the research topic (Figure 1). Four independent reviewers completed the screening and selection of the studies, assessed their quality, and extracted the data.

Figure 1*PRISMA Flow Diagram*

Results

This systematic review included a final count of six studies: one Level III study, one Level IIIA study, three Level IV studies, and one Level V study. The articles were assessed according to their risk of bias, level of evidence, and quality. This systematic review included six studies that contained relevant information regarding cancer survivors returning to work. The information from these articles was divided into two themes: (1) *Early education on prognosis and RTW* and (2) *Living with vs. without a caregiver/family*. An evidence table is provided in Appendix B. The Cochrane risk-of-bias guidelines were used to assess each article and are provided in Appendix C.

Early Education on Prognosis and RTW

Two of the six studies discussed the importance and efficacy of early prognosis education related to several dimensions of health impacts on a cancer survivor's occupational performance and health-related quality of life (HRQoL). One of these studies was a Level V study (Carlson et al., 2021) and one was a Level IV study (Bellagamba et al., 2021). See Appendix B. Both studies showed that being made aware of health-related impacts early on for physical, mental, and financial domains is effective and seems to be beneficial for mitigating occupational challenges and improving HRQoL.

Carlson et al. (2021) conducted a Level V qualitative study using semi-structured interviews. The participants included 21 cancer survivors. The researchers examined the relationship between cancer, employment, and financial hardships. The researchers used thematic analysis and found that participants experienced increased anxiety based on employment uncertainty. CS strongly expressed how early education from healthcare

professionals about their prognosis and treatment would make a significant difference in their ability to work and their capacity to work during and post treatment. Without receiving that initial education, patients reported being unable to set realistic RTW goals or plan for the changes in new financial situations, highlighting a massive gap in advocacy and preemptive awareness and education.

Bellagamba et al. (2021) conducted a Level IV cross-sectional study with 105 cancer survivors and assessed how individual efforts and clinical support influence the process of RTW. The researchers utilized self-administered questionnaires and found that maintaining regular contact with their employers during sick leave and having an optional pre-reinstatement visit with an occupational physician enhanced the improvement towards work outcomes. The study outcome indicated that when survivors received early clinical guidance and advocated for treatment adaptations, they were much more likely to successfully reintegrate into their occupational roles and experience positive changes in their working conditions.

These studies had some limitations. Both relied on self-reported questionnaires and semi-structured interviews, which introduced risk of recall bias and subjective interpretation (Bellagamba et al., 2021; Carlson et al., 2021). Both studies had generalizability limitations due to their geographic settings. Bellagamba et al. (2021) recruited from a single occupational health service in France, and Carlson et al. (2021) represented patients within a specific public-private health system located in Australia.

Living With vs. Without a Caregiver/Family

Two out of the six studies examined the efficacy of family or caregiver support and the importance of partnership in enhancing HRQoL for those with cancer and CS. One of these

studies was a Level III study and one was a Level IV study (see Appendix B). All studies provided evidence that partnership during cancer recovery is both effective and potentially beneficial for improved occupational performance.

In a cross-sectional randomized controlled trial conducted by Blichfeldt et al. (2023), 174 participants diagnosed with advanced cancer were asked to assess differences in self-perceived occupational performance with consideration of living status. Utilizing the Individually Prioritised Problem Assessment (IPPA), prioritization and difficulty of everyday occupations were identified for these participants. Upon completion of analyzing baseline data from this study, 731 everyday occupations were perceived as problematic, and of those, specific occupations such as showering/bathing and doing laundry were perceived to be more statistically and frequently difficult by those who live alone as compared to those living with someone. This finding may be largely due to safety concerns associated with these occupations and the lack of external assistance during performance. Doing the laundry was also reported as higher priority to be solved by people living alone than those living with someone. Additional categories of reported occupations included mobility, leisure, social interaction, and housework.

Lin et al. (2024) investigated the impacts of cancer type, surgical treatment, and employment status on HRQoL for irradiated head and neck cancer survivors. This study included 150 patients (90 with oral cavity cancer [OCC] and 60 with nasopharyngeal cancer [NPC]) and the use of the functional assessment of cancer therapy–head and neck (FACT-H&N) in a cross-sectional survey. To explore the relationships between variables and HRQoL, multiple regression, ANOVA, and t-tests were used. The results of this study found that cancer type, surgical treatment, and employment status were significant independent predictors for HNC patients' HRQoL. Furthermore, NPC patients reported improved HRQoL on three FACT-H&N

subscales which included social/family well-being, functional well-being, and additional concerns. A crucial takeaway from this study was that partnership status for OSCC patients is an independent predictor of HRQoL. Moreover, patients with full-time jobs and a partner displayed enhanced HRQoL.

Limitations of the studies on importance of living status and partnership include a cross-sectional study design, selection bias, reduced generalizability, and recall bias (Blichfeldt et al., 2023; Lin et al., 2024). In addition, the studies pose a limitation due to other potential confounding factors such as gender, age, type of residence, education, and treatment modalities (Blichfeldt et al., 2023; Lin et al., 2024). Self-reported data such as the use of the IPPA and FACT-H&N questionnaires poses a potential risk for reliance on self-reported bias within both of these studies.

Discussion

The results of this systematic review suggest that occupational therapy interventions are important for CS in returning to work and may be effective to improve employment, health, and overall quality of life for cancer survivors. Receiving early information was strongly suggested by CS on how this could allow them more opportunities to financially plan for time when they won't be able to work (Carlson et al., 2021). They expressed that many may not understand the financial challenges they face not being able to work due to their illness. CS experiences workplace barriers, bullying, harassment and discrimination. This highlights the importance of employers and healthcare professionals proactively addressing barriers for patients to return to work. Also, ; having a partnership between CS and medical teams and receiving guidance from a doctor makes RTW easier (Bellagamba et al., 2021).

In addition to the improvement of employment, health, and quality of life, having support from a family/caregiver plays a significant role in patients RTW status. Those that live with someone tend to prioritize social interaction. Patients who live with someone are confronted with challenges they may face in their environment when it comes to social interaction. However, further research should be conducted to determine if this factor is the same in other contexts, not just in their home environment. Regarding the difference between CS who live alone compared to living with someone, they found that laundry was reported to be the most difficult occupation and the one they prioritize. Patients who live with someone tended to prioritize their home maintenance due to the different types of residence; however, the unequal distribution of gender within the studies might be a significant factor. Some researchers suggest that there is a difference between men and women in terms of ADLs; however, other researchers state that there is no significant difference between men and women in both their performance of ADLs and their meaningful activity problems.

Participants that wanted to continue working experienced a decrease in health due to not being able to continue in their capacity. Disruptions to patients' employment made CS prioritize their financial security over their health; they would rather delay their treatment to continue receiving income. This disruption not only affected the patient, but also the families were impacted. This is what led the patients to feeling stress, anxiety, and worthlessness. These results stress the importance of early education on how CS can prepare for these financial implications (Carlson et al., 2021).

Strengths and Limitations

This systematic review was strengthened by its adherence to PRISMA guidelines, thorough risk of bias assessments, robust screening processes, and comprehensive search of multiple databases. Each article was screened by all four researchers and were included through consensus based on the established inclusion criteria. They were, then, reviewed and assessed for risk of bias. A variety of databases were utilized to locate the included articles, allowing for a larger variety of studies. This review was limited by a low number of qualifying articles and the moderate risk of bias in many of the included studies. Due to the specificity of the research question and rigorous exclusion and inclusion criteria, few studies qualified for the review. This systematic review also included lower levels of research and no randomized controlled trials. The average moderate risk of bias as well as the lack of Level 1 research resulted in a diminished strength of findings.

Implications for Occupational Therapy Practice

The results of this review suggest that occupational therapy interventions focusing on return-to-work goals may lead to positive vocational outcomes for cancer survivors (Fleischer & Sayers, 2025). Return-to-work outcomes for CS during and after treatment may also vary depending on overall prognosis, living situation, familial support, financial stability, and education on their condition (Carlson et al., 2021). Return-to-work capabilities of CS may impact their mental health and perceived quality of life, which may be appropriate targets of therapy (Maheu et al., 2025). Living situations and caregiver support may have a significant impact on RTW outcomes and perceived occupational performance (Blichfeldt et al., 2023). Occupational therapists (OTs) can support CS in returning to work by providing work adaptations and

addressing accessibility concerns (Bellagamba et al., 2021). OTs can initiate ongoing, open conversation about RTW expectations and collaborate with CS to set reasonable and achievable goals. OTs can also locate resources and assist in creating financial plans of action for CS who may be unable to RTW after treatment (Carlson et al., 2021). Through client-centered intervention and ongoing collaboration with both medical staff and caregivers, OTs may be able to facilitate higher quality of life and overall life satisfaction through RTW-focused care.

- RTW-focused OT interventions may facilitate positive vocational outcomes for CS
- Caregiver support and education may help facilitate positive RTW outcomes for CS
- CS RTW capabilities may impact overall quality of life and mental health
- OTs can support CS by providing education and ongoing communication about expectations on RTW capabilities throughout treatment

Conclusion

Studies included within this systematic review provide preliminary evidence on the effectiveness of RTW-centered OT intervention for CS. Additional research is necessary to assess the efficacy of specific RTW interventions and further analyze the impact RTW capabilities have on overall recovery and quality of life of CS. Work is not only a meaningful occupation for many individuals, but also a source of financial stability and independence. RTW-based OT care may help support CS in maintaining their participation in meaningful vocational roles, leading to more positive mental health outcomes. As work is a defining occupation of many CS lives, RTW goals fit perfectly within the OT client-centered lens of practice. Caregiver engagement and support throughout treatment may also lead to more positive recovery and RTW outcomes. Early conversations about RTW goals can help both CS and

caregivers, alike, gain a more comprehensive understanding of treatment expectations, decreasing overall stress. Through continued research and continuing to actively listen to the expressed needs of the CS community, OTs can learn how to best support CS in returning to work.

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<https://doi.org/10.3390/curroncol32030166>

Appendix A

Systematic Review Search Terms

OT OR occupational therapy

AND

cancer

AND

Interventions OR strategies OR best practice

AND

Return to work OR rtw OR employment OR vocational rehabilitation OR work resumption
OR work re-entry

NOT

Systematic review OR meta-analysis

Appendix B

Evidence Table for OT Interventions Supporting Return-to-work for Adults with Cancer

Author/Year	Level of Evidence Study Design Risk of Bias	Participants Inclusion Criteria Study Setting	Intervention and Control Groups	Outcome Measures	Results
Bellagamba et al. (2021) https://doi-org.hpu.idm.oclc.org/10.1080/13548506.2020.1795212	Level 4 Cross-sectional study Risk of Bias Moderate	Participants N = 105 cancer survivors after at least 4 weeks after time of return to work (RTW) Inclusion Criteria Full-time or part-time resumption for RTW	No Intervention – Survey research	Methods & Factors Impacting RTW - Self-administered questionnaire - RTW within 1 yr of diagnosis	Significant Findings RTW within 1 yr associated with regular contact by cancer survivor with company during sick leave; Adaption of treatment associated with change in working conditions and leads to survivors' effort to RTW
Blichfeldt et al. (2023) https://doi-org.hpu.idm.oclc.org/10.1080/11038128.2022.2141314	Level 4 Cross-sectional study using baseline data from an RCT Risk of Bias Moderate	Participants N = 174 (60 living alone; 114 living someone) Inclusion Criteria Adults 18+ diagnosed with advanced cancer living within a radius	No Intervention – Secondary analysis of data collected from RCT	Difficulty performing everyday occupations - Self-reported - Scored on five-point Likert scale Prioritization addressing those	Significant Findings: 731 problematic everyday occupations were identified mainly related to housework, self-care, and leisure

		of 60km from AUH, living in a private home, and sufficient Danish skills Exclusion Criteria Cognitive impairment, lived in nursing home or a hospice, and those considered incapable of complying with trial		occupations • Self-reported • Individually Prioritized Problem Assessment (IPPA)	
Carlson et al., (2021) https://doi.org/10.1007/s00520-02	Level 5 Qualitative study using semi-structured interviews Risk of Bias: Moderate	Participants N = 21 (age range, 18-60+; 71.4% female) Inclusion Criteria Adults with cancer diagnoses who called a cancer information support line and scored a four or higher on the Distress Thermometer outcome measure Intervention Setting Semistructured	Intervention No intervention; patients participated in 45-minute semi-structured interviews to understand the relationship between cancer and employment and determine preferred methods of support through treatment.	Stress: Distress Thermometer Personal experience: Collected through semi-structured interviews	Significant findings Using codebook thematic analysis through NVivo 12, researchers determined three key themes characterizing cancer patients' experiences with employment: (1) The dynamic relationship between cancer diagnosis and employment: (2) Participants

		telephone interviews (remote/virtual)			didn't have linear RTW experiences due to ongoing illness and treatment, often needing to discontinue or take time off after returning due to treatment side effects; (3) Psychological impacts of employment uncertainty: Some participants reported delaying cancer treatment to continue working as long as possible due to financial strain. Participants shared feelings of stress and overwhelming anxiety at the thought of their savings depleting. Some participants reported possibly facing homelessness as a result of cancer
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					treatment costs Mitigating the impact of employment disruption: Participants reported a lack of consideration and education provided on what to expect financially during and after treatment. One participant insisted that, if they had been made more aware of their illness trajectory, they could have put provisions in place to reduce the financial stress post-treatment. Participants expressed a need to discuss the emotional side effects of treatment and loss of employment as well with healthcare
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					professionals as assistance in setting reasonable RTW expectations and goals with consideration given to their expected treatment outcomes. Nonsignificant findings: N/A
Fleischer & Sayers. (2025) https://doi.org/10.5014/ajot.2025.051030	Level 4 Retrospective case series Risk of Bias: Moderate	Participants N = 3 (33% Female; Middle-aged) Inclusion criteria Adults with brain cancer referred to occupational therapy services with the goal of returning to work Intervention setting: Outpatient clinic	Intervention: 3-Phase Individualized Interventions Guided by PEOP (N = 3) Sessions were 45 minutes long and frequency ranged between 4-10 visits. Phase 1 focused on restoring ability to do self-care tasks and	Patient 1: Cognitive: WCPA Motor: 5xSTS (5x sit-to-stand) Mood/Wellbeing: PHQ-9 Patient 2: Cognitive: SLUMS (St. Louis University Mental Status) Visual processing: Trails A and B,	Significant Findings: Patients made small gains over time, one meeting the criteria for clinically significant change in their PHQ-9 (Patient Health Questionnaire-9) results and two moved from severe cognitive impairment to mild

			ADA education. Phase 2 involved pre-work skills interventions and self-advocacy for accommodations. Phase 3 involved the individual returning to work and working with the therapist to develop compensatory strategies specific to their work environment.	Dynavision, Bells Test, peripheral vision screening Patient 3: Cognitive:WCPA (Weekly Calendar Planning Activity), SLUMS Visual processing:Trails A and B	on the SLUMS. These findings offer preliminary evidence of the possible efficacy of individualized, PEOP-based OT interventions to address the return-to-work needs of cancer survivors. Nonsignificant finding N/A
Lin et al. (2024) http://doi.org/10.3390/cancers16193366	Level 3 Cross-Sectional Survey Risk of Bias Moderate	Participants N = 150 (M age, 50.9 yr; range 29–72 yr; 85.3% male, 14.7% female). Inclusion Criteria Head and neck cancer (HNC) survivors who completed their entire course of treatment, >20 yr old, able to	Group 1: NPC Cohort (n = 60) Patients diagnosed with nasopharyngeal carcinoma (NPC) treated exclusively with definitive radiotherapy (RT) or concurrent chemoradiotherapy (CCRT), with no	Health-Related Quality of Life (HRQoL) • Functional Assessment of Cancer Therapy Head and Neck. Categories measured to determine HRQoL Physical Well-Being , Social/Family Well-	Significant findings: The group that did not undergo facial surgery, Nasopharyngeal carcinoma (NPC), had higher Health Related Quality of Life (HRQoL) measurements than the group that did have facial surgery, Oral squamous cell carcinoma (OSCC).

		communicate verbally, no active disease at the time of the survey, no major psychological disease (such as schizophrenia), and no significant pre-diagnosis disfigurement. Intervention Setting Follow-up outpatient clinics of the Department of Radiation Oncology at a medical center hospital in northern Taiwan.	surgical intervention. Group 2: OSCC Cohort (n = 90) Patients diagnosed with oral cavity squamous cell cancer (OSCC) who underwent radical surgical intervention followed by adjuvant RT or CCRT. All surgically treated patients received a reconstructive operation.	Being , Emotional Well-Being , and Functional Well-Being.	The patients who were employed had higher HRQoL measurements than the unemployed group. Non-significant findings: No significant differences in HRQoL were observed based on age, gender, partnership status, education level, and time since irradiation among the patients with NPC.
Maheu et al. (2025) https://doi.org/10.3390/curroncol32030166	Level 3A Two-phase cross-sectional study <i>Risk of Bias</i> Moderate	Participants N = 346 (Adults aged 65 years or younger) Inclusion criteria Understanding of cancer survivors	Intervention Study I: Questionnaire Participants filled out a 16-item survey to assess the tool's validity using a 7	- Questionnaire based on RTW status - 16-item survey using a 7-point Likert scale Scales used to measure properties of the CAWSE:	Significant findings CAWSE revealed five subscales: symptoms, workplace accommodation, meaning of work, coping, and

		returning to work, tools available, and developing and validating the Cancer and Work Scale (CAWSE) to help determine the likelihood of cancer survivors returning to work and sustaining employment <i>Intervention setting</i> Participants' homes	point Likert scale Study II: Online survey methodology Participants took an online questionnaire; Those who returned to work received a version in present test; those who did not return to work received a version with future-oriented phrasing based on return to work (RTW) status	- 7-item subscale of the Hospital Anxiety and Depression Scale (HADS); European Organisation for Research and Treatment of Cancer Quality of Life Questionnaire (EORTCQLQ-C30); Assessment of Survivor Concerns (ASC)	importance of work. More than one third of participants reported change in their job position following their cancer treatment, providing context for interpreting the CAWSE results Nonsignificant findings No significant association was observed between work return status and scores on the Factor 6 subscale which assessed workplace, economic, and external factors
Note. PEO = Person Environment Occupation Performance Model; WCPA = Weekly Calendar Planning Activity; 5xSTS = 5-Time-Sit-to-Stand Test; PHQ-9 = Patient Health Questionnaire 9; SLUMS = St. Louis University Mental Status Examination; RTW = return to work; N = number of participants;					

Risk-of-Bias Table for Randomized Controlled Trial (RCT) and Non-RCT (Two or More Group Design)										
	Selection Bias (Risk of bias arising from randomization process)			Performance Bias (effect of assignment to intervention)		Detection Bias		Attrition Bias	Reporting Bias	Overall risk of-bias (low, moderate, high)
Citation	Random Sequence Generation	Allocation Concealment (until participants enrolled and assigned)	Baseline difference between intervention groups	Blinding of Participants During the Trial	Blinding of Study Personnel During the Trial	Blinding of Outcome Assessment : Self reported outcomes	Blinding of Outcome Assessment: Objective Outcomes (assessors aware of intervention received?)	Incomplete Outcome Data (data for all or nearly all participants)	Selective Reporting (results being reported selected on basis of the results?)	
Blichfeldt et al. (2023) https://doi.org/10.1016/j.jclinepi.2023.110000	?	+	+	-	-	+	+	+	+	L

org.hpu.id m.oclc.org/ 10,1080/1 1038128.2 022.21413 14										
Maheu et al. (2025) https://doi.org/10.3390/currenol32030166	?	-	+	-	-	+	+	+	+	L

Note. Categories for risk of bias are as follows: Low risk of bias (+), unclear risk of bias (?), high risk of bias (–). Scoring for overall risk of bias assessment is as follows: 0–3 minuses, low risk of bias (L); 4–6 minuses, moderate risk of bias (M); 7–9 minuses, high risk of bias (H).

Citation. Table format adapted from Higgins, J. P. T., Sterne, J. A. C., Savović, J., Page, M. J., Hróbjartsson, A., Boutron, I., . . . Eldridge, S. (2016). A revised tool for assessing risk of bias in randomized trials. *Cochrane Database of Systematic Reviews* 2016, Issue 10 (Suppl. 1), 29–31. <https://doi.org/10.1002/14651858.CD201601>

Risk of Bias for Before-After (Pre-Post) Studies with No Control Group (One Group Design)												
Citation	Study question or objective clear	Eligibility or selection criteria clearly described	Participants representative of real-world patients	All eligible participants enrolled	Sample size appropriate for confidence in findings	Intervention clearly described and delivered consistently	Outcome measures pre-specified, defined, valid/reliable, and assessed consistently	Assessors blinded to participant exposure to intervention	Loss to follow-up after baseline 20% or less	Statistical methods examine changes in outcome measures from before to after intervention	Outcome measures were collected multiple times before and after intervention	Overall risk of bias assessment (low, moderate, high risk)
Bellagamba et al. (2021) https://doi.org/hpu.idm.oclc.org/10.1080/13548506.2020.1795212	Y	NR	Y	NR	NR	NR	N	N	N	N	N	L

Carlson et al. (2021) https://doi.org/10.1007/s00520-021-06707-7	Y	Y	NR	NR	NR	N	N	NR	N	N	N	M
Fleischer & Sayers. (2025) https://doi.org/10.5014/ajot.2025.051030	Y	NR	Y	NR	NR	N	N	N	N	Y	Y	M
Lin et al. (2024) http://doi.org/10.3390/cancers16193366	Y	Y	Y	N	Y	N	Y	N	N	N	N	M

Note. Y = yes; N = no; NR = not reported. Scoring for overall risk of bias assessment is as follows: 0–3 N, Low risk of bias (L); 4–8 N, Moderate risk of bias (M); 9–11 N, High risk of bias (H).

Citation. Table format adapted from National Heart Lung and Blood Institute. (2014). Quality assessment tool for before–after (pre–post) studies with no control group. Retrieved from <https://www.nhlbi.nih.gov/health-topics/study-quality-assessment-tools>