

Occupational therapy groups and functional outcomes in oncology: A Literature Review.

Abstract

Aim: To answer the research question: ‘Are occupational therapy or activity of daily living (ADL) based groups linked to improved functional outcomes for adult patients with cancer?’

Background: Maintaining function is crucial for those with cancer. Despite this, most people with cancer experience difficulties with everyday activities. Occupational therapy is recommended to facilitate return to ADLs. There is a lack of research on occupational therapy in oncology. This review aims to address this research gap.

Method: This study is a review. A search of Medline, CINAHL, AMED, OTSeeker and Health Source: Nursing/Academic Edition was completed for peer-reviewed articles published between 1997 to 2018. Inclusion criteria included English research articles, adult cancer patients and occupational therapy based group interventions. Quantative, qualitative and mixed-method studies were considered. Subject heading search terms included occupational therapy, activities of daily living and cancer patients.

Results: 273 articles were retrieved once duplicates were removed. 33 articles were then further assessed based on the inclusion criteria. Seven articles matched the inclusion criteria. These included a randomised control trial, longitudinal comparative descriptive study, two pretest-posttest studies, a mixed-method study, qualitative descriptive exploratory research and a case study. OT groups were found to lead to some positive functional outcomes. Themes such as patient improvement in everyday activities and reaching functional goals were also identified.

Discussion and Conclusion: This review demonstrated occupational therapy groups in cancer led to positive functional outcomes as well as patient perceived ADL improvement. Further research is indicated in this area particularly in inpatient cancer settings.

Keywords: occupational therapy, activities of daily living, cancer patients, group, function.

Key points:

1. Most people with cancer experience functional issues.
2. Occupational therapy is recommended to improve functional difficulties in patients however there remains limited research in this area.
3. Occupational therapy groups lead to improved functional outcomes for people with cancer.
4. Occupational therapy groups result in patient perceived improvement in valued activities of daily living.
5. More research is required in this area particularly in the inpatient cancer setting with a mixed gender sample.

Journal choice:

As the official journal of Occupational Therapy Australia, the “Australian Occupational Therapy Journal” was chosen for this review. All members of Occupational Therapy Australia have access to this journal (John Wiley & Sons, Inc, 2018) matching the selected audience for this review. It is a peer reviewed journal published bimonthly by Wiley-Blackwell (John Wiley & Sons, Inc, 2018). This journal is also accessible internationally and is listed in relevant international databases including AMED, CINAHL, MEDLINE, PsycINFO and Health Source Nursing/Academic (John Wiley & Sons, Inc, 2018). It has an impact factor of 1.616 and ranked 28/65 in the ISI Journal Citation Reports under the heading Rehabilitation (John Wiley & Sons, Inc, 2018). The journal has ethical guidelines and adheres to the Committee on Publication Ethics (COPE) and National Statement on Ethical Conduct in Human Research (John Wiley & Sons, Inc, 2018). Guidelines for submission and contact details are provided on the website and this includes specific guidelines for literature reviews.

Introduction

Cancer is a major health issue. In Australia, over 138,000 people are expected to be diagnosed in 2018 alone (Australian Institute of Health and Welfare, 2017). Maintaining function is crucial for patients with cancer. Reduced function can lead to being unable to cope with treatments (West & Jin, 2015). Patients are also required to be at a high functional level to be considered appropriate for clinical trials (West & Jin, 2015).

Function refers to being able to complete tasks required for everyday activities (Baum & Edwards, 1995). Despite the importance of function for in oncology, most cancer patients in hospital have difficulties completing functional tasks (Lindahl-Jacobsen, Hansen, Wæhrens, la Cour & Søndergaard, 2015). This decrease in ability with everyday activities is reported to be caused by both cancer symptoms as well as treatment effects (Peoples, la Cour, Brandt & Waehrens, 2016). However, a decline in functional ability is common even amongst those who have finished their cancer treatment (Hwang, Lokietz, Lozano & Parke, 2015). Loss of previous functional roles and being unable to participate in usual everyday tasks is also highlighted as an issue, particularly for patients in the later cancer stages (Peoples, la Cour, Brandt & Waehrens, 2016).

Difficulties with activities of daily living (ADL) linked with cancer can be improved with rehabilitation (Hunter & Baltisberger, 2012; Neo, Fettes, Gao, Higginson & Maddocks, 2017). Rehabilitation is reported to increase function and independence in those with cancer (Amatya, Khan & Galea, 2017; Hunter & Baltisberger, 2012). According to the World Federation of Occupational Therapists, occupational therapy aims to ‘enable people to participate in activities of everyday life’ (WFOT 2016, 2016). In cancer care, occupational therapy is recommended to facilitate management of functional issues (Farley, McCarthy & Pergolotti, 2017). Additionally, occupational therapy input for cancer patients can lead to return to participation in valued ADLs (Peoples, la Cour, Brandt & Waehrens, 2016). Cancer services are recommended to regularly address ADL difficulties (Neo, Fettes, Gao, Higginson & Maddocks, 2017). However, most cancer patients do not obtain rehabilitation services including occupational therapy (Hunter & Baltisberger, 2012; Hwang, Lokietz, Lozano & Parke, 2015; Pergolotti, Deal, Lavery, Reeve & Muss, 2015).

This review will focus on occupational therapy groups for patients with cancer. Occupational therapy based groups are valuable to patients as they provide peer support as well as the opportunity to work together on goals (Capasso & Gorman, 2010; Patterson, Fleming, Doig & Griffin, 2017). However, the author is unaware of any cited literature reviews focusing on occupational therapy groups specific to cancer patients. Due to the oncology patient population, a significant amount of occupational therapists’ time is needed to be spent on assessment and planning for discharges (Cooper & Littlechild, 2004). Therefore, if oncology OT groups were found to be useful it could also be a time-efficient way for therapists to provide

intervention to a few patients at once. This would therefore also still allow time for other clinical tasks such as discharge planning.

The purpose of this review is to determine whether occupational therapy groups for adult patients with cancer relate to improved functional outcomes. Cancer related fatigue is also related to function. Fatigue due to cancer is suggested to be linked to decreased independence in ADLs (Hofman, Ryan, Figueroa-Moseley, Jean-Pierre & Morrow, 2007; Luciani et al., 2008). There is suggested to be a lack of research around functional cancer interventions (Hunter, Gibson, Arbesman & D'Amico, 2017). Furthermore, there is a need for more occupational therapy cancer studies to review activity of daily living (ADL) based interventions and consider functional based outcomes (Hunter, Gibson, Arbesman & D'Amico, 2017). This review will aim to address this research gap and provide insight into the functional value of occupational therapy groups in cancer care.

Method

The PIO acronym was used to structure the research question. Population is adult patients with cancer; Interventions are group based occupational therapy or activity of daily living (ADL) based groups and the Outcome is improved function. Based on this the research question is:

Are occupational therapy or activity of daily living (ADL) based groups linked to improved functional outcomes for adult patients with cancer?

The [redacted] University databases searched for this review included *Medline* which has over 5,200 worldwide journals based on health (U.S. National Library of Medicine, 2018). The *CINAHL* database was also chosen as it is specific to nursing and allied health (EBSCO Health, 2018) with *AMED* also used as it is a specialised allied health database (Ovid Technologies, 2018). As an Australian database specific to occupational therapy treatments, *OTseeker* was also selected ("Welcome to OTseeker", 2018). Finally, *Health Source: Nursing/Academic Edition* was chosen as it extensively covers allied health disciplines (National Library of Australia, 2018).

The search strategy, including the list of databases and search terms used for this review, including the number of articles found using this method is shown in **Table 1**. Please note some databases such as *OTseeker* did not have automatic limiters. The search was limited to articles published between January 1997 and January 2018 that met the following inclusion criteria:

- Study designs: qualitative, quantitative and mixed method research articles.

- Publication type and language: peer-reviewed articles published in English, research articles.
- Intervention type: occupational therapy or activity of daily living (ADL) group-based interventions (including multidisciplinary group interventions).
- Population: adult (over 18 years old) inpatients and outpatients with cancer.

Table 1. Databases and search terms used to identify literature for review

<i>Database</i>	<i>Search terms</i>	<i>No. articles</i>
Medline	Occupational Therapy [MeSH] OR Activities of Daily Living [MeSH] OR “occupational therap*” OR “activit* of daily living” OR ADL	208
AND	group OR “group therapy” OR “group intervention” OR “group program”	
AND	(Neoplasms [MeSH] OR cancer or neoplasms or oncology or tumo#r or malignancy) AND (Patients [MeSH] OR patient or client or service user or individual)	
AND	function* OR independen* OR ability OR performance	
Limiters:	January 1997- January 2018, English, Adult 19+, Academic Journals	
Cinahl	Occupational Therapy [Heading] OR “occupational therap*” OR ADL OR Activities of Daily Living [Heading] OR “activit* of daily living”	26

AND	group OR “group therapy” OR “group intervention” OR “group program”	
AND	Cancer Patients [Heading] OR (patient or client or service user or individual AND cancer OR oncology OR neoplasm OR tumor OR malignancy)	
AND	function* OR independen* OR ability OR performance	
Limiters:	January 1997-January 2018, English, scholarly peer-reviewed journals, research articles, All Adult	
AMED	Occupational Therapy [Subject] OR “occupational therap*” OR “activit* of daily living” OR ADL	23
AND	group OR “group therapy” OR “group intervention” OR “group program”	
AND	(cancer or neoplasms or oncology or tumor or malignancy) AND (patient or client or service user or individual)	
AND	function* OR independen* OR ability OR performance	
Limiters:	January 1997- January 2018, English	
OTSeeker	“occupational therapy” OR “occupational therapist” OR ADL OR “Activit* of Daily Living”	
AND	cancer OR oncology	
AND	Group	
AND	function* OR independen* OR ability OR performance	
Limiters:	January 1997 – January 2018	10
Health Source: Nursing/Academic Edition	ACTIVITIES of daily living training [Subject] OR OCCUPATIONAL therapy [Subject] OR “occupational therap*” OR ADL OR “activit* of daily living”	
AND	Group	

AND	(patient or client or service user or individual AND cancer or oncology or neoplasm or tumo#r or malignancy) OR CANCER patients [Subject]	
AND	function* OR independen* OR ability OR performance	
Limiters	January 1997-January 2018, English, peer-reviewed journal articles	67
Total records identified after database searching		334
Total records after duplicates removed		273

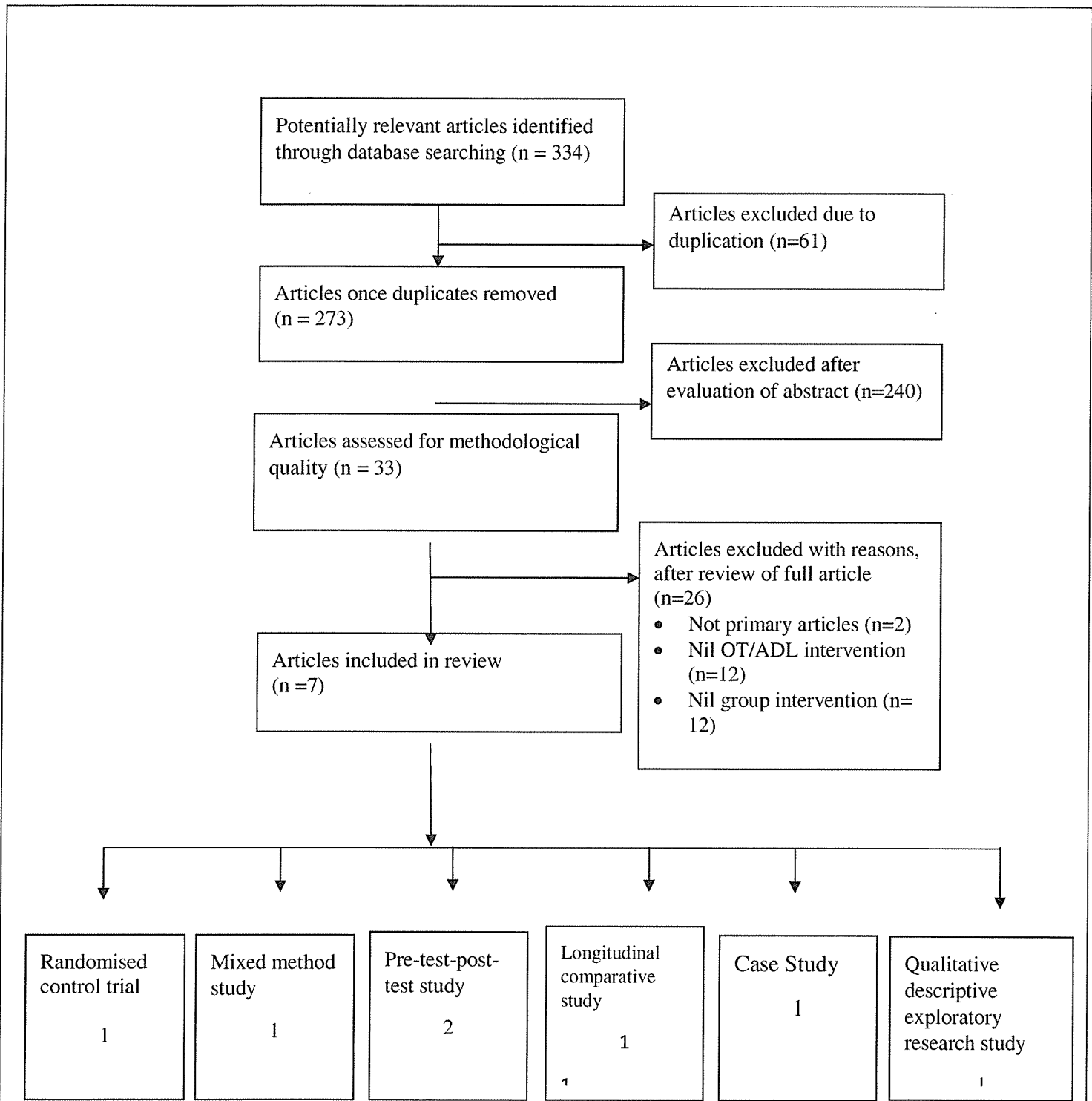
This literature search method yielded 334 articles. Once duplicates (n=61 articles) were removed, the abstract of 273 articles were screened for inclusion in this review. 49 articles were not at all related to a cancer population and were excluded. For example, one article was based occupational therapy interventions for those with symptoms due to a stroke diagnosis (Sackley et al., 2015). Most of the other articles (n=191) were not linked to an occupational therapy or ADL intervention with many solely based on exercise therapy, physiotherapy, medical assessments, medications or treatments. These were excluded resulting in 240 articles altogether excluded post abstract review. Some abstracts were unclear as to occupational therapy involvement- these were included for further review. The remaining 33 articles were screened for inclusion in this review. A further 26 articles were excluded for the following reasons:

- Two studies were critical/systematic reviews and not primary articles (Payne, Wiffen & Martin, 2012 & Tran, 2003).
- Studies did not match the inclusion criteria of an occupational therapy or ADL based intervention (Bourmaud et al., 2017; Fu et al., 2010; Huang, Cifu & Keyser-Marcus, 2000; Jensen, Petersen, Jensen, Laustsen & Borre, 2014; Korstjens et al., 2008; Lindahl-Jacobsen, Hansen, Wæhrens, la Cour & Søndergaard, 2015; May et al., 2008; O'Dell, Barr, Spanier & Warnick, 1998; Rummans et al., 2006; Samarel, Fawcett & Tulman, 1997; Taylor & Currow, 2003). For example, two studies focused on activities of daily living however nil intervention was reviewed (Lindahl-Jacobsen, Hansen, Wæhrens, la Cour & Søndergaard, 2015; Taylor & Currow, 2003). Other

studies had interventions facilitated by other disciplines, such as a physiotherapist, social worker and psychologist (May et al., 2008).

- The interventions discussed did not meet the inclusion criteria of a group intervention (Brandt et al., 2016; Cooper & Littlechild, 2004; Désiron, Donceel, Godderis, Van Hoof & de Rijk, 2014; Frost et al., 1999; Godino, Jodar, Durán, Martínez & Schiaffino, 2006; Hansen, Rosenbek Minet, Søggaard & Jarden, 2014; Higginson et al., 2014; Jakobsson, Ekman & Ahlberg, 2008; Khan, Amatya, Pallant, Rajapaksa & Brand, 2012; Miller & Hopkinson, 2008; O'Brien, Loughnan, Purcell & Haines, 2013; Pearson, Morris & McKinstry, 2017; Yuen, Mitcham & Morgan, 2006).

The remaining articles (n=7) were all international studies. They included 1 randomised control trial, 1 case-study, 1 descriptive exploratory research study, 1 mixed methods study, 2 pre-test-post-test studies and 1 longitudinal prospective comparative study. See **Graphic 1** for the modified PRISMA flow diagram.



Graphic 1 Modified PRISMA flow diagram of article screening and selection

Results

Included studies characteristics

Seven international studies matched the inclusion criteria and included a randomised control trial (RCT) (Huri, Huri, Kayihan & Altuntas, 2015), a longitudinal comparative descriptive study (Andersson Svidén, Fürst, von Koch & Borell, 2009), two pretest-posttest studies (Maher & Mendonca, 2018 & Saarik & Hartley, 2010), a mixed methods study (Ream, Richardson & Evison, 2005), qualitative descriptive exploratory research (Palmadottir, 2010) and a case study (Haltiwanger, Rojo & Funk, 2011). Refer to Table 2 and Table 3 for the key study design features. The oldest study was published in 2005 (Ream, Richardson & Evison, 2005) and the most recent study was published in 2018 (Maher & Mendonca, 2018). Studies were conducted in Turkey (Huri, Huri, Kayihan & Altuntas, 2015), Sweden (Andersson Svidén, Fürst, von Koch & Borell, 2009), the United States (Haltiwanger, Rojo & Funk, 2011; Maher & Mendonca, 2018) England (Ream, Richardson & Evison, 2005; Saarik & Hartley, 2010) and Iceland (Palmadottir, 2010).

Participant demographics

Sample sizes ranged from one (Haltiwanger, Rojo & Funk, 2011) to 71 participants (Maher & Mendonca, 2018). Most studies had female only participants (Haltiwanger, Rojo & Funk, 2011; Maher & Mendonca, 2018; Palmadottir, 2010; Ream, Richardson & Evison, 2005) with one having only male participants (Huri, Huri, Kayihan & Altuntas, 2015). The two mixed-gender studies also had mostly female participants (Andersson Svidén, Fürst, von Koch & Borell, 2009; Saarik & Hartley, 2010). Recruitment for the studies was via a university occupational therapy (OT) department (Huri, Huri, Kayihan & Altuntas, 2015), support groups, community centres, churches (Haltiwanger, Rojo & Funk, 2011; Maher & Mendonca, 2018; Palmadottir, 2010), outpatient nurse specialists (Saarik & Hartley, 2010), a palliative care day program and home service (Andersson Svidén, Fürst, von Koch & Borell, 2009) and through cancer centres' advertisement (Ream, Richardson & Evison, 2005). Some studies had participants with specific cancer diagnoses such as prostate cancer (Huri, Huri, Kayihan & Altuntas, 2015) breast cancer (Palmadottir, 2010; Ream, Richardson & Evison, 2005) and lymphoma (Haltiwanger, Rojo & Funk, 2011). The remaining studies had participants with various cancer diagnoses (Andersson Svidén, Fürst, von Koch & Borell, 2009; Maher & Mendonca, 2018; Saarik & Hartley, 2010). All participants were outpatients ranging from 25 to

85 years (Andersson Svidén, Fürst, von Koch & Borell, 2009; Haltiwanger, Rojo & Funk, 2011; Huri, Huri, Kayihan & Altuntas, 2015; Maher & Mendonca, 2018; Palmadottir, 2010; Ream, Richardson & Evison, 2005; Saarik & Hartley, 2010).

Type of Interventions Provided

Group OT interventions provided included cognitive-behavioural based interventions (Huri, Huri, Kayihan & Altuntas, 2015), OT based activity programs (Andersson Svidén, Fürst, von Koch & Borell, 2009; Haltiwanger, Rojo & Funk, 2011; Maher & Mendonca, 2018) and fatigue groups (Ream, Richardson & Evison, 2005; Saarik & Hartley, 2010). One study did not identify the specific group provided (Palmadottir, 2010). Intervention duration varied from one week (Maher & Mendonca, 2018) to 12 weeks (Huri, Huri, Kayihan & Altuntas, 2015) with two studies not stating this (Haltiwanger, Rojo & Funk, 2011; Palmadottir, 2010). Group frequency ranged from three sessions over a six-week period (Ream, Richardson & Evison, 2005) to five days a week (Maher & Mendonca, 2018). Length of each session ranged from one hour (Huri, Huri, Kayihan & Altuntas, 2015) to four hours (Maher & Mendonca, 2018) with two studies not specifying duration (Haltiwanger, Rojo & Funk, 2011; Palmadottir, 2010).

Data collection and analysis methods

Relevant quantitative outcomes measured included quality of life, function, fatigue and occupational performance and satisfaction (Andersson Svidén, Fürst, von Koch & Borell, 2009; Huri, Huri, Kayihan & Altuntas, 2015; Maher & Mendonca, 2018; Ream, Richardson & Evison, 2005; Saarik & Hartley, 2010). Assessment methods included the Canadian Occupational Performance Measure (COPM) (Huri, Huri, Kayihan & Altuntas, 2015; Maher & Mendonca, 2018), the European Organization for Research and Treatment of Cancer: Core Quality of Life Questionnaire C30 (EORTC-QLQ-C30) (Andersson Svidén, Fürst, von Koch & Borell, 2009; Huri, Huri, Kayihan & Altuntas, 2015; Ream, Richardson & Evison, 2005), the Brief Fatigue Inventory (BFI) (Ream, Richardson & Evison, 2005), the 36-item short form health survey (SF-36) and the WHO Quality of Life-Brief Version (WHOQOL-BREF) (Maher & Mendonca, 2018). Likert scales were also used (Saarik & Hartley, 2010). Qualitative data collections methods included interviews, observations, recorded reflections and art pieces (Haltiwanger, Rojo & Funk, 2011; Palmadottir, 2010; Ream, Richardson & Evison, 2005). Qualitative data analysis methods included coding (Palmadottir, 2010) and thematic analysis (Haltiwanger, Rojo & Funk, 2011; Ream, Richardson & Evison, 2005).

Relevant study outcomes

Quantitative outcomes. For studies where $p < 0.05$, OT group intervention led to a significant increase in occupational performance and satisfaction scores in the COPM (Huri, Huri, Kayihan & Altuntas, 2015; Maher & Mendonca, 2018). EORTC-QLQ-C30 scores in physical and role functioning where $p < 0.05$ also increased post OT group intervention (Huri, Huri, Kayihan & Altuntas, 2015). One study also found increases in physical, emotional and social functioning and a decrease in fatigue in the EORTC-QLQ-C30 although significance was not mentioned (Ream, Richardson & Evison, 2005). Another study found a decrease in moderate and severe fatigue post group participation yet significance was not reported (Saarik & Hartley, 2010). The BFI scores in one study indicated that post participation in the group, patients noted less interference of fatigue with work (Ream, Richardson & Evison, 2005). One study found no significant changes in the EORTC-QLQ-C30 scores (Andersson Svidén, Fürst, von Koch & Borell, 2009) and another paper found nil changes in fatigue levels on the BFI post the OT group (Ream, Richardson & Evison, 2005). The WHOQOL-BREF also showed nil changes pre-compared to post OT group (Maher & Mendonca, 2018).

Qualitative outcomes. Qualitative studies found patients perceived that OT groups led to enabling a return to roles and valued occupations as well as an overall health improvement (Haltiwanger, Rojo & Funk, 2011; Palmadottir, 2010). Communicating with peers undergoing similar experiences was also considered to be beneficial (Palmadottir, 2010; Ream, Richardson & Evison, 2005). Additionally, the mixed methods study found the group led to achievement of functional goals and improvement in activities of daily living (Ream, Richardson & Evison, 2005). The case study highlighted the importance of an OT group in ‘finding meaning in living with cancer’ (Haltiwanger, Rojo & Funk, 2011, p.79).

Table 2

Key study design features of quantitative phases of reviewed studies

First author (year) Country	Study Design	Group Intervention	Sample	Data collection and tools used	Relevant Outcomes measured	Results * significant <0.05
Huri (2015) Turkey	RCT Pre-post-test with control Recruited from Department of Occupational Therapy, Hecettepe University, Ankara, Turkey (Huri, Huri, Kayihan & Altuntas, 2015, p. 956)	OT cognitive-behavioural based group Duration: 12 weeks X2 weekly hour-long group OT intervention (Huri, Huri, Kayihan & Altuntas, 2015, p. 956)	Outpatients Metastatic prostate cancer (Male) N= 19 Treatment group Mean age= 70.89 N=15 Control Group Home Program Mean age= 70.27 (Huri, Huri, Kayihan & Altuntas, 2015, p.956, 957)	-Canadian Occupational Performance Measure (COPM) measured before and after group. - European Organization for Research and Treatment of Cancer: Core Quality of Life Questionnaire C30 (EORTC-QLQ-C30) -Prostate Cancer component (QLQ-PR25) (Huri, Huri, Kayihan & Altuntas, 2015, p.956)	Group impact on quality of life and functional occupational performance and satisfaction (Huri, Huri, Kayihan & Altuntas, 2015), p.956, 957	-COPM scores Intervention group 94.7% significant increase in performance and satisfaction (p<0.05) at final evaluation Control group no significant difference in COPM score for mean performance and mean satisfaction -EORTC-QLQ-C30 and QLQ-PR25 Intervention group

Andersson Svidén (2009) Sweden	Longitudinal comparative study longitudinal design Recruitment from palliative care day program Comparison group obtained by an in-home palliative care service (Andersson Svidén, Fürst, von Koch & Borell, 2009, p.442)	Palliative care day program including group activities facilitated by occupational therapy and nursing Duration: 5weeks 2-5hours daily attendance, frequency not stated (Andersson Svidén, Fürst, von Koch & Borell, 2009, p.442)	Outpatients Day-care group N=23 4 males 19 females Age: <49=3, 50-69=16, 70-89=4 Comparison group N= 12 2 males 10 females Age: <49=1, 50-69=8, 70-89=3 All had a diagnosis of cancer (Andersson Svidén, Fürst, von Koch &	EORTC-QLQ-C30 completed once a week for 5weeks (Andersson Svidén, Fürst, von Koch & Borell, 2009, p.442)	Health-related quality of life, function of oncology patients in a palliative day program compared to the comparison group of patients receiving in-home palliative care services (Andersson Svidén, Fürst, von Koch & Borell, 2009, p.442)	Improvement (p<0.05) in function (including physical, role, emotional and social) (Huri, Altuntas, 2015, p. 957, 958)
						No significant differences between day-program patients and in-home service patients of self-reported function and symptoms as per EORTC-QLQ-30 (Andersson Svidén, Fürst, von Koch & Borell, 2009, p.443, 444)

<p>Maier (2018) United States</p>	<p>One group pre-test, post-test prospective study Participants recruited from clinics, hospital support groups, community centres and churches in Pennsylvania and New Jersey (Maier & Mendonca, 2018, p.7202205040p2)</p>	<p>Activity-based occupational therapy program 5days week- 4hour session Duration: 1 week (Maier & Mendonca, 2018, p.7202205040p3)</p>	<p>Borell, 2009, p.443) N= 71 Outpatients Women Aged 25 to >85 39% of women in 55-64 Various cancer diagnoses (Maier & Mendonca, 2018, p.7202205040p4)</p>	<p>-36-item short form health survey (SF-36) -WHO Quality of Life-Brief Version -Canadian Occupational Performance Measure (COPM) (Maier & Mendonca, 2018, p.7202205040p3)</p>	<p>-From pre-test to 6 weeks post intervention did participation in the program improve functional health? -From pre-test to 5-day post-test to 6-week follow-up did program increase occupational performance and satisfaction? (Maier & Mendonca, 2018, p.7202205040p2)</p>	<p>-No significant differences pre-test to 6 weeks follow up for WHOQOL-BREF subscales and SF-36 -COPM performance and satisfaction significantly increased (p<0.001) (Maier & Mendonca, 2018, p.7202205040p4)</p>
<p>Saarik (2010) England</p>	<p>Pre-experimental study. One group pre-test-post-test Recruitment from clinical nurse specialists across</p>	<p>Weekly fatigue management program (2-3-hour sessions) Duration: 4 weeks</p>	<p>Outpatients N= 23 female N= 5 male Age range: 37-82 years Range of cancer diagnoses</p>	<p>-Likert scale 0-10- no tiredness to totally exhausted (Saarik & Hartley, 2010, p.10,11)</p>	<p>Fatigue levels pre- and post-group. (Saarik & Hartley, 2010, p.10)</p>	<p>-Mild fatigue Pre-group- 0% of patients Post group--35% --Moderate fatigue</p>

Ream (2005) England	Doncaster cancer sites (Saarik & Hartley, 2010, p.8,9)	(run by physiotherapy and OT) (Saarik & Hartley, 2010, p.9,10)	(Saarik & Hartley, 2010, p.10)	<p>-EORTC-QLQ-C30</p> <p>-Brief Fatigue Inventory pre, post and 6 weeks post program (Ream, Richardson & Evison, 2005, p.181, 182)</p>	<p>-Fatigue levels uncton and quality of life (Ream, Richardson & Evison, 2005, p.181, 182)</p>	<p>Pre-group-65% of patients</p> <p>Post group- 59% --Severe fatigue</p> <p>Pre-group- 35% of patients</p> <p>Post group 6% Significance not tested (Saarik & Hartley, 2010, p.11)</p>
	<p>Mixed method Group self-recruitment post verbal and flyer advertisement/education in a London cancer centre (Ream, Richardson & Evison, 2005, p.181)</p>	<p>Multidisciplinary (including OT) 'Fatigue Management Group' X3 150-minute sessions Duration: 6weeks (Ream, Richardson & Evison, 2005, p.180)</p>	<p>N= 6</p> <p>Outpatients Women with breast cancer diagnoses Finished cancer treatment Mean age= 54 (Ream, Richardson & Evison, 2005, p.182)</p>			<p>BFI:</p> <p>-Nil significant change in fatigue levels</p> <p>-Less interference of fatigue with work post intervention and at 6weeks post intervention compared to pre-intervention EORTC-QLQ-C30:</p> <p>- Function (emotional, physical and social) increased from pre-intervention</p>

compared to
post intervention
and 6 weeks
post intervention
-Fatigue
symptoms,
improved after
intervention and
6weeks post
intervention
compared to
before
intervention
Significance not
reported.
(Ream,
Richardson &
Evison, 2005,
p.183-185)

Table 3

Key study design features of qualitative phases of reviewed studies

First author (year) Country	Study aims	Study design (qualitative research approach)	Group Intervention	Sample/participants	Data collection method and analysis	Relevant Results (key findings/themes)
Palmadottir (2010) Iceland	Effect of engagement in occupations on perceived health for women from initial diagnosis to post treatment (Palmadottir, 2010, p. 300)	Descriptive exploratory research Recruitment: breast cancer support group and rehabilitation and support centre (Palmadottir, 2010, p. 300)	OT group type not identified	Outpatients N= 18 women breast cancer diagnosis Median age= 53 (Palmadottir, 2010, p.300)	Data collection: interviews Data analysis: transcribed interviews were qualitatively coded (Palmadottir, 2010, p.301)	- OT group involvement led to an increase in psychological and physical health - Communicating with others experiencing cancer was also valued (Palmadottir, 2010, p.304)
Haltiwanger (2011) United States	Study aim: -Investigate the cancer experience of a patient -Use of art to increase understanding of OT role in support groups	Case study Recruitment: patient was from expressive art support group (Haltiwanger, Rojo & Funk, 2011, p.73)	Weekly art based support group (Haltiwanger, Rojo & Funk, 2011, p.73) intervention duration not stated	N=1 (outpatient) 57-year-old Caucasian female with lymphoma 4 women with metastatic cancer altogether in group (Haltiwanger, Rojo & Funk, 2011, p.73)	Data collection: -telephone interviews - observations -recorded and transcribed reflections -artefacts	-Group enabled patients to participate in valued roles and occupations -Group led to self-understanding in the context of a cancer diagnosis

Ream (2005) England	for those with cancer (Haltiwanger, Rojo & Funk, 2011, p.70)	Mixed-methods Recruitment: self-recruitment post cancer centre education (Ream, Richardson & Evison, 2005, p.181)	Multidisciplinary fatigue group Duration: 6 weeks (Ream, Richardson & Evison, 2005, p.180)	N= 6 Outpatients Women with breast cancer diagnoses Finished cancer treatment Mean age= 54 (Ream, Richardson & Evison, 2005, p.182)	Data analysis: thematic analysis (Haltiwanger, Rojo & Funk, 2011, p.71, 74) Qualitative data collection: telephone interviews Qualitative data analysis: thematic analysis (Ream, Richardson & Evison, 2005, p.180, 182)	(Haltiwanger, Rojo & Funk, 2011, p. 75-81) -All patients reported group was helpful -Sharing with others was highly valued - Patients noted being able to meet own goals -Increase in function and improvement in activities of daily living reported (Ream, Richardson & Evison, 2005, p.184, 185)
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Discussion

It is highlighted that occupational therapy should be a core component of cancer care to holistically improve patients' function (Sleight & Duker, 2016). However, the literature around occupational therapy and its role in oncology remains limited (Sleight & Duker, 2016). As stated previously there also no known previous review on OT groups in cancer and this review aimed to address this gap.

Implications of findings

Quantitative and qualitative studies reported mostly positive functional outcomes resulting from OT group in cancer care. This would suggest OT groups are a worthwhile consideration for oncology occupational therapists. As mentioned previously patients with cancer are most likely to have functional issues (Hwang, Lokietz, Lozano & Parke, 2015; Lindahl-Jacobsen, Hansen, Wæhrens, la Cour & Søndergaard, 2015). Therefore, the evidence that OT groups are linked to improved functional outcomes is most relevant to the adult cancer population. In addition, group interventions are well regarded to be more time-efficient than individual interventions. For that reason, this review would be significant to health services looking at strategic ways to improve efficiencies without impacting patient care.

The significance of results however differs across studies. Two quantitative studies showed a significant functional improvement post OT group intervention (Huri, Huri, Kayihan & Altuntas, 2015; Maher & Mendonca, 2018). Three other studies also found functional increases post an OT group yet the results were not significant (Ream, Richardson & Evison, 2005; Saarik & Hartley, 2010). Furthermore, there were two studies which found no functional differences in certain measures (Andersson Svidén, Fürst, von Koch & Borell, 2009; Maher & Mendonca, 2018; Ream, Richardson & Evison, 2005). This is indicative of further research required confirming significant functional effectiveness of OT cancer groups.

The qualitative aspects of studies also reported increased functional outcomes post OT group participation. Participants experienced return to valued ADLs and achievement of functionally-related goals (Haltiwanger, Rojo & Funk, 2011; Palmadottir, 2010; Ream, Richardson & Evison, 2005). This research supports the functional impact of occupational therapy groups to patients. It also highlights the importance of including patient voice when determining an intervention's outcome. However only one mixed method study and two

qualitative studies were obtained. Furthermore, one study reviewed ability and engagement in ADLs perceived by women with cancer (Palmadottir, 2010). The value of OT groups was discussed yet was not a key focus of the study (Palmadottir, 2010). Limited qualitative research in this area highlights the need for further qualitative study on patients' perceptions of OT groups.

Limitations in studies obtained

Studies mainly focused on a range of cancer diagnoses. One study which had solely prostate cancer participants also acknowledged the need for further research to include a variety of cancer diagnoses (Huri, Huri, Kayihan & Altuntas, 2015). Most inpatient and outpatient cancer settings in Australia have people with various cancer diagnoses so it is vital studies reflect this mix also. However, most studies had female only (Haltiwanger, Rojo & Funk, 2011; Maher & Mendonca, 2018; Palmadottir, 2010; Ream, Richardson & Evison, 2005) or a female majority of participants. This may indicate difficulty generalising these results to a male cancer population. It also suggests a need for future research with a more balanced gender sample.

Recruitment and retention was a major issue reported. Two studies had difficulties in the treating health professional recruiting patients (Ream, Richardson & Evison, 2005; Saarik & Hartley, 2010). The need for a larger sample size was also recognised (Andersson Svidén, Fürst, von Koch & Borell, 2009; Huri, Huri, Kayihan & Altuntas, 2015). Exploring the OT group outcomes over a longer time was also suggested (Andersson Svidén, Fürst, von Koch & Borell, 2009; Huri, Huri, Kayihan & Altuntas, 2015; Saarik & Hartley, 2010). However, the difficulty in contacting the participants and obtaining results once the participants had left the group setting was highlighted (Maher & Mendonca, 2018). Patients not completing studies due to medical reasons was another issue reported (Maher & Mendonca, 2018). Despite these challenges, such issues are to be somewhat expected in studies with cancer patients. It has been acknowledged that studies in oncology can be difficult and recruiting/retaining participants can be problematic due to medical issues (Harrison-Paul & Drummond, 2006).

Effectiveness of outcome measures

The COPM proved to be a useful outcome measure in demonstrating significant functional improvement post an OT group (Huri, Huri, Kayihan & Altuntas, 2015; Maher & Mendonca, 2018). It has also shown to be a reliable assessment tool (Eyssen, Beelen, Dedding, Cardol & Dekker, 2005). The EORTC-QLQ-C30 also produced positive functional results (Huri,

Huri, Kayihan & Altuntas, 2015; Ream, Richardson & Evison, 2005). The BFI questions around fatigue's functional impact for example on work also appeared to be useful (Ream, Richardson & Evison, 2005). The WHOQOL-BREF however showed nil changes post the group and it was acknowledged also that the tool's questions around sexual activity were distressing for some participants (for example those with ovarian cancer) (Maher & Mendonca, 2018). Therefore, it is recommended this assessment is avoided for future studies relating to OT functional groups in cancer. Interviews, artefacts, observations and reflections all led to positive qualitative reports on the functional impact of OT groups. However, one qualitative study acknowledged the potential bias in the author solely completing the data analysis (Palmadottir, 2010). Of the studies obtained some also presented additional outcomes along with function. As these were unrelated to the research question they were not reported in this review. Such outcomes included mood, emotional wellbeing and anxiety levels (Andersson Svidén, Fürst, von Koch & Borell, 2009; Ream, Richardson & Evison, 2005; Saarik & Hartley, 2010). These could potentially be the focus of future literature reviews of oncology OT groups.

Research gaps and indications for future research

All studies focused on outpatient settings. However occupational therapists also work in inpatient settings such as hospitals and palliative care services (Occupational Therapy Australia Ltd, 2015). Therefore, this review highlights a gap in research into oncology occupational therapy groups within inpatient settings. Furthermore, it has been reported that issues with activities of daily living are significantly more predominant for inpatients with cancer than outpatients (Neo, Fettes, Gao, Higginson & Maddocks, 2017). For that reason, research into the group benefits of OT groups in this inpatient setting is required. Additionally, nil articles were found addressing domestic and community ADL issues. However, a literature review has shown that around half of those with cancer need assistance with domestic and community ADLs (Neo, Fettes, Gao, Higginson & Maddocks, 2017). It would therefore be worthwhile to research if OT groups were useful in addressing these difficulties.

In summary, this critical review has shown that OT groups for adult patients with cancer can result in improved functional outcomes. However no Australian research was obtained and the studies were solely linked to outpatient settings. In addition, most studies were based on a female participant sample and further studies to indicate significance of findings was indicated. An Australian study on the functional effects of OT groups in inpatient cancer care with a

balanced gender sample is therefore strongly recommended. It would provide insight into whether OT group intervention is functionally effective in inpatient cancer care. A mixed method study is proposed to measure both functional outcomes and patient perceived functional improvements following an OT group.

Conclusion

In conclusion this critical review found that OT groups were linked to improved functional outcomes in adult patients with cancer. Patients also self-reported positive feedback such as achieving improvement in everyday activities. This is important for OT practice as most patients with cancer have functional issues which need addressing. Further studies are recommended in this area, particularly in the inpatient oncology setting. Knowledge that OT groups are linked to increased function in cancer patients may lead more therapists and health services to consider this time-efficient intervention.

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