
Occupational Therapy Interventions for Chronic Diseases: A Scoping Review

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KEY WORDS

- activities of daily living
- chronic disease
- community health services
- occupational therapy
- review
- treatment outcome

OBJECTIVE. We reviewed the evidence regarding the effectiveness of community occupational therapy interventions, delivered alone or within a multidisciplinary team, in improving occupational outcomes for adults with selected chronic diseases.

METHOD. We completed a scoping review of randomized controlled trials published from 1988 through 2008. Studies included participants with heart disease, depression, rheumatoid arthritis, osteoarthritis, chronic obstructive pulmonary disorder, or diabetes.

RESULTS. Sixteen studies met the inclusion criteria. Ten studies found significant differences between intervention and control groups for at least one outcome of function in activities of daily living, functional self-efficacy, social or work function, psychological health, general health, or quality of life. Conflicting evidence exists regarding the impact of intervention on physical function and health.

CONCLUSION. Occupational therapy can improve occupational outcomes in adults with chronic diseases. Using and building on this evidence, occupational therapists can continue to promote their role in helping to meet this population's needs.

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Eighty percent of the burden of illness in developed countries results from noncommunicable or chronic diseases (World Health Organization [WHO], 2005). People with a range of chronic diseases, such as arthritis, heart, or lung diseases, experience limitations in occupations ranging from personal care to household chores to community activities (Machado, Gignac, & Badley, 2008; Perruccio, Power, & Badley, 2007). Occupational therapy for this group typically involves community-based interventions (Rijken & Dekker, 1998) aimed at improving participation in occupations. Interventions include environmental adaptations, adaptive equipment, coping strategies (Hammond & Freeman, 2001; Wilde & Hall, 1995), and vocational interventions (Nordmark et al., 2006). Outcomes may include improvements in self-care, productivity, and leisure (Canadian Association of Occupational Therapists, 1997). Overall health (WHO, 1986), quality of life (WHO, 1998), and functional self-efficacy (Bandura, 1997) may be affected as well.

To practice effectively in this area, occupational therapists need evidence to inform and justify their interventions; this literature is emerging. Many chronic diseases share risk factors, such as unhealthy diet, inactivity, and age (WHO, 2005), and intervention approaches, such as peer support, education, and coping methods (e.g., Austin, Williams, Ross, Moseley, & Hutchison, 2005; Griffiths et al., 2000; Hammond & Freeman, 2001). Examining a range of chronic disease literature can lead to implications that apply across diagnoses.

No reviews exist of community-based occupational therapy interventions with people with a variety of chronic diseases. To address this gap, we reviewed

the evidence regarding the effectiveness of community-based occupational therapy interventions in improving occupational outcomes for adults with selected chronic diseases. The six leading disabling chronic conditions in adults ≥ 60 yr are cardiovascular diseases, cerebrovascular disease, chronic obstructive pulmonary disease (COPD), depression, osteoarthritis (OA), and rheumatoid arthritis (RA; WHO, 2008). Although it may not always be disabling, diabetes is another chronic disease with a high prevalence (WHO, 2008). With the exception of cerebrovascular disease, these six diseases are the focus of this article.

Method

Scoping review methodologies, which address broad questions (in contrast to systematic reviews, which often focus on very specific questions; Arksey & O'Malley, 2005) are emerging in health literature as a means of examining a range of literature in a single review (Davis, Drey, & Gould, 2009). We completed a scoping review of peer-reviewed literature using the method recommended by Arksey and O'Malley (2005).

In the current review, two researchers independently identified relevant studies in AMED, CINAHL, EMBASE, MEDLINE, the Cochrane Library, and PsycInfo. Searches were also conducted in databases containing systematic reviews, to hand-search relevant reviews for novel articles, including OT Critically Appraised Topics (CATs), Queens University, Kingston, Ontario, Canada; OT CATs, University of Western Sydney, Penrith, New South Wales, Australia; OT Seeker; OTD Base; Campbell Collaboration; Agency for Health Care Policy and Research; American Occupational Therapy Association (AOTA) Evidence Briefs; and Canadian Occupational Therapy Foundation Critical Research Literature Reviews. The following search terms were used: randomized controlled trial(s); random allocation/assignment; randomization; randomized; clinical trial(s); occupational therapy/therapist; multidisciplinary care team; patient care team; teamwork; rehabilitation; interdisciplinary research; depression; pulmonary disease, chronic obstructive; lung diseases, obstructive; diabetes mellitus; arthritis; rheumatoid; osteoarthritis; coronary disease; heart diseases. Searching involved articles published from 1988 to 2008, inclusive.

Studies were included if they

- Focused on community-based or outpatient interventions;
- Described an intervention delivered by occupational therapy or multidisciplinary teams that included occupational therapists;
- Were a randomized controlled trial (RCT) published in English;

- Involved adults with one or more of cardiovascular disease, COPD, depression, diabetes, OA, or RA; and
- Reported on occupational outcomes including function in self-care, productivity, leisure, health status, quality of life, or self-efficacy in performing daily tasks. Outcome measures were considered to measure occupation if they included questions about the activities or occupations in which the person participates. Articles were excluded if they
- Focused on splinting (without any other intervention) or
- Focused on cerebrovascular disease.

These areas were excluded because of the specialized nature of intervention and because several reviews in these areas have been published recently (e.g., Aziz et al., 2008; Egan & Brousseau, 2007).

Two researchers then abstracted data from the articles and analyzed study quality using McMaster University's Critical Review Form for Quantitative Studies (Law et al., 1998). The form consists of eight sections (study purpose, literature, design, sample, outcomes, intervention, results, and conclusions or clinical implications), which include questions that prompt evaluation of the quality of a study. Any disagreements regarding study quality were resolved by a third researcher. Intervention characteristics, including professions involved, format, frequency, intensity, duration, and approach, were also abstracted.

Results

The search resulted in 141 articles. Application of the inclusion and exclusion criteria revealed 17 articles that discussed 16 studies. Six review articles relevant to the search were also identified. Four reviews focused on specific diagnoses or interventions (Fine, 2001; Palmer & Simons, 1991; Steultjens, Dekker, Bouter, van Schaardenburg, & van den Ende, 2002; Towheed, 2005). Two further reviews examined occupational therapy with a variety of conditions (Steultjens, Dekker, Bouter, Leemrijse, & van den Ende, 2005; Wilkins, Jung, Wishart, Edwards, & Norton, 2003). The reference lists of these reviews did not contain any novel articles, and the current review included 14 articles that were not included in the previous reviews.

The retrieved studies were related to RA (10), COPD (3), depression (1), chronic heart failure (1), and multiple conditions (1). No studies were identified related to diabetes or OA. Four studies reported on basic activities of daily living (BADLs), instrumental ADLs (IADLs), or both; 4 studies reported on work; 2 studies reported on social function; 11 studies reported on physical function;

2 studies reported on psychological health; and 6 studies reported on overall health and quality of life. Table 1 summarizes the appraisals by proportion of criteria met, and Table 2 describes the interventions used in each study. An evidence table summarizing the studies included in this review is available online at www.ajot.ajotpress.net (navigate to this article, and click on “supplemental materials”). Despite the methodological limitations noted, all 16 studies identified were included in the review because of the emerging nature of this area of practice. The following sections summarize the study results in the context of each study’s limitations.

Studies Targeting BADLs and IADLs

The 4 studies that measured BADL or IADL outcomes found improvements in the intervention group compared with control participants. The interventions were as follows:

- A multidisciplinary group program for people with COPD, after which the intervention group improved on a combined scale of BADLs and IADLs and the control group declined (Bendstrup, Ingemann Jensen, Holm, & Bengtsson, 1997).
- A joint protection group for adults with early RA, after which the intervention group improved in BADLs and the control group’s ability remained constant (Hammond & Freeman, 2001). In its 4-yr follow-up study (Hammond & Freeman, 2004), the control group had declined more than the intervention group in BADL function.
- An in-home and telephone intervention for participants with multiple conditions including arthritis, hypertension, visual impairment, cardiovascular problems, and diabetes, after which the intervention group

improved more than the control group in BADLs and IADLs (Gitlin et al., 2006). The intervention group also improved in functional self-efficacy (confidence in managing ADLs) compared with the control group.

- An in-home program for adults with RA after which the intervention group improved more than the control group on a combined scale of BADLs and IADLs (Helewa et al., 1991).

The magnitude of the differences between the intervention and control groups appears small: 1 point on a 10-point scale (Hammond & Freeman, 2001), half a point on a 10-point scale (Hammond & Freeman, 2004), 0.13–0.15 points on a 5-point scale (Gitlin et al., 2006), and 9 points on a 104-point scale (Helewa et al., 1991). The differences between the intervention and control groups in Bendstrup et al.’s (1997) study ranged from 14 to 24 points; however, the maximum possible score was not stated. Three studies used outcome measures with limited testing (Bendstrup et al., 1997; Gitlin et al., 2006; Helewa et al., 1991), and 1 used unblinded outcome assessors (Bendstrup et al., 1997). Despite these limitations, these 4 studies provide evidence that occupational therapy interventions delivered in a group or individually can improve function in BADLs and IADLs for people with COPD, RA, or multiple conditions.

Studies Targeting Work

Four studies examined participation in work as an outcome, but only 1 (Schene, Koeter, Kikkert, Swinkels, & McCrone, 2007) found improvement in the intervention group compared with control participants. This study involved occupational therapy focused on work reintegration for adults with major depression; compared with the control group, the intervention group resumed work more quickly (in 207 days vs. 299 days) and worked more hours (20 vs. 0 for mo 1–6, 262 vs. 1 for mo 7–12, 456 vs. 156 for mo 13–18). The other studies involved the following programs:

- A multidisciplinary job retention vocational program for adults with a chronic rheumatic condition at risk of job loss (de Buck et al., 2005)
- An occupational therapy arthritis education program (Hammond, Young, & Kidao, 2004)
- A multidisciplinary joint protection program (Masiero et al., 2007).

The studies were limited by cointervention in the control group (de Buck et al., 2005), a sample that reported good symptom control at baseline (Hammond et al., 2004), and programs that did not target work ability (Hammond et al., 2004; Masiero et al., 2007). These limitations prevent firm conclusions about the effectiveness

Table 1. Summary of Critical Appraisal of Studies

Appraisal Area	Proportion of Studies Meeting Criterion
Purpose clearly stated?	16/16
Literature reviewed?	16/16
Appropriate design?	16/16
Random allocation?	16/16
Blinded evaluators?	15/16
Sample size justified? ^a	12/16
Similar groups (size and characteristics)?	15/16
Outcome measure valid and reliable?	13/16
Intervention described?	16/16
Contamination or cointervention avoided?	15/16
Results: Appropriate analyses?	15/16
Reported statistical significance?	15/16
Provided reasons for drop-outs?	16/16
Conclusions fit results?	16/16

^aFour studies had <20 participants per group.

Table 2. Summary of Interventions

Authors	Professions Involved, Format	Frequency, Intensity, Duration	Approach
	Studies With at Least One Significant, Positive Result		
Austin, Williams, Ross, Moseley, & Hutchison (2005)	Multidisciplinary—group (nurse, occupational therapist, physiotherapist, dietician)	8 wk, 2 times/wk for 2.5 hr 16 wk, 1 hr/wk As needed	Education, counseling Exercise Individual occupational therapy, physiotherapy, or dietician
Bendstrup, Ingemann Jensen, Holm, & Bengtsson (1997)	Multidisciplinary—group (occupational therapist, physiotherapist, nurse, physician)	12 wk, 3 times/wk once per week	Exercise training Education, coping with activities, smoking cessation
de Buck et al. (2005)	Multidisciplinary—individual (rheumatology, social work, occupational therapy, physical therapy)	4–12 wk	Job retention program (education, counseling, and intervention)
Finnerly, Keeping, Bullough, & Jones (2001)	Multidisciplinary—group (occupational therapist, physiotherapist, dietician, nurse)	6 wk, 2 hr/wk 1 hr/wk 3-wk follow-up, 1 hr/wk	Education Exercise class Drop-in exercise class
Gitlin et al. (2006)	Occupational therapist—individual, plus 1 physiotherapy visit	6 mo, 5 occupational therapy contacts and 1 physiotherapy contact, then 6 mo, 4 occupational therapy contacts	Home-based intervention
Griffiths et al. (2000)	Multidisciplinary—group (occupational therapist, physiotherapist, dietician)	6 wk, 3 sessions of 2 hr/wk	Education on coping, psychological issues, and exercise, then patient-run weekly group if desired
Hammond & Freeman (2001, 2004)	Occupational therapist—group	4 sessions, 2 hrs each	Educational—behavioral joint protection arthritis education
Helewa et al. (1991)	Occupational therapist—individual	6 wk	Home-based intervention
Masiero et al. (2007)	Multidisciplinary—group (developed by medicine, occupational therapy, physical therapy)	12 wk, 3-hr session every 3 wk	Joint protection arthritis education program, monthly phone contact
Schene, Koeter, Kikkert, Swinkels, & McCrone (2007)	Occupational therapist—individual and group	1 yr (5 assessment visits in 4 wk, then 24 weekly group sessions and 12 1:1 sessions, then 3 1:1 follow-up visits over 20 wk)	Work reintegration—work problems and supports Group discussion: individual progress, stress, boundaries, conflict
	Studies With Nonsignificant Results		
Hammond, Jeffreson, Jones, Gallagher, & Jones (2002)	Occupational therapist—group	4 wk, 2 hr/wk	Educational—behavioral joint protection program
Hammond, Young, & Kidao (2004)	Occupational therapist—individual and group	6–8 wk, 4 individual sessions, 1 two-hr group session	Arthritis education program
Hammond, Lincoln, & Sutcliffe (1999)	Occupational therapist—group	2 wk, 2 sessions/wk, 2 hr each, then an optional home visit	Joint protection program
Kraaimaat Brons, Geenen, & Bijlsma (1995)	Occupational therapist—group	10 wk, 2 hr/wk	Coping with limitations, energy conservation, joint protection, and assistive devices
Li, Davis, Lineker, Coyte, & Bombardier (2005)	Occupational therapist or physiotherapist—individual	6 wk	In-home education, pain management, splinting, exercise, assistive devices
Li, Davis, Lineker, Coyte, & Bombardier (2006)	Occupational therapist or physiotherapist—individual	6 wk	In-home education, physical modalities, splinting, exercise, assistive devices

of occupational therapy in improving work outcomes for people with RA; however, occupational therapy that targets work appears to improve work outcomes for adults with depression (Schene et al., 2007).

Studies Targeting Social Function

The 2 studies that examined social functioning as an outcome found improvements in the intervention groups and slight declines in the control groups. The interventions included a multidisciplinary group education program for adults with COPD in which the difference between groups was 20 points on a 100-point scale (Griffiths et al., 2000) and a multidisciplinary joint protection program for adults with RA in which the difference between groups was 1.4 points on a 10-point scale (Masiero et al., 2007). Although in 1 study, the improvements were not lasting (Griffiths et al., 2000), the results suggest that group interventions may meet social needs in the short term and have the potential to improve social functioning over the longer term for adults with COPD or RA.

Studies Targeting Physical Function or Physical Health

Eleven studies examined the impact of occupational therapy interventions on physical function, of which 2 found improvements in the intervention groups and slight declines in the control groups. The 2 studies finding improvements involved the following programs:

- A multidisciplinary joint protection program for adults with RA in which the difference between groups was 0.4 on a 3-point scale (Health Assessment Questionnaire [HAQ]; Ramey, Raynauld, & Fries, 1992) and 1.5 on a 10-point scale (SF-36; Masiero et al., 2007)
- A multidisciplinary rehabilitation program for adults with COPD in which the difference between groups was 3 points on a 100-point scale (Griffiths et al., 2000).

The remaining 9 studies entailed the following programs and interventions:

- Joint protection programs offered by an occupational therapist for adults with RA (Hammond & Freeman, 2001, 2004; Hammond, Jeffreson, Jones, Gallagher, & Jones, 2002; Hammond, Lincoln, & Sutcliffe, 1999)
- An occupational therapy arthritis education program for adults with early RA (Hammond et al., 2004)
- An in-home occupational therapy intervention for adults with RA (Helewa et al., 1991)
- Primary therapist rehabilitation for adults with RA (Li, Davis, Lineker, Coyte, & Bombardier, 2005, 2006)

- A multidisciplinary job retention vocational program for adults with RA (de Buck et al., 2005)
- In-home occupational therapy for adults with multiple conditions (Gitlin et al., 2006).

Several considerations are important in interpreting the nonsignificant findings, including lack of a no-intervention control group (Hammond & Freeman, 2001, 2004; Li et al., 2006), small sample sizes (Hammond et al., 2002, 1999; Li et al., 2005), short treatment duration (Hammond et al., 1999), low treatment intensity and a sample that reported good control of their symptoms at baseline (Hammond et al., 2004), limited testing of outcome measure (Helewa et al., 1991), cointervention in the control group (de Buck et al., 2005), and use of unpublished outcome measures (Gitlin et al., 2006). One further difference among the studies is that Masiero and colleagues (2007) targeted moderate to severe RA, whereas the other studies targeted mild RA (Hammond & Freeman, 2001, 2004) or did not target a specific RA severity.

Taken together, these studies suggest that occupational therapy may not improve physical function for people with chronic diseases. The studies that did not find improvements involved people with RA or multiple conditions and were limited by several issues. The 2 studies that showed improvements in physical function in the intervention groups involved participants with moderate to severe RA (Masiero et al., 2007) and COPD (Griffiths et al., 2000).

Studies Targeting Psychological Health

The 2 studies that examined psychological health found improvements in the intervention group compared with control participants on the mental components score of the SF-36. The interventions included the following:

- A multidisciplinary job retention program for adults with RA in which the intervention group improved 14 points and the control group improved 2 points on a 100-point scale (de Buck et al., 2005)
- A multidisciplinary rehabilitation program for adults with COPD in which the intervention group improved 7 points and the control group declined 1 point on a 100-point scale (Griffiths et al., 2000).

Although participants in the latter study did not maintain improvements at 1 yr, the evidence suggests that multidisciplinary interventions can improve psychological health for people with RA and over the short term for people with COPD.

Studies Targeting Health Status or Quality of Life

Studies that measured health status or quality of life appeared to be describing the same concept and, in one

case, used the same tool. Some authors used disease-specific measures, whereas others used generic measures. Three of the 6 studies that examined health status or quality of life found improvements in the intervention group compared with control participants, as follows:

- A multidisciplinary cardiac rehabilitation program for adults with chronic heart failure in which the intervention group improved 18 points but the control group improved 4 points on a 105-point scale (Minnesota Living With Heart Failure Questionnaire), and the intervention group improved 0.1 and the control group remained constant on a 0 to 1 scale (EuroQol; Austin et al., 2005)
- A multidisciplinary rehabilitation program for adults with COPD in which the intervention group improved 13 points (at 3 mo) and 9 points (at 6 mo), whereas the control group improvements were 1 and 2 points, respectively, on a 100-point scale (Finnerty, Keeping, Bullough, & Jones, 2001)
- Another multidisciplinary rehabilitation program for adults with COPD in which the intervention group improved 3 points, whereas the control group declined 1 point on a 100-point scale (Griffiths et al., 2000).

The studies in which no improvement was found in the intervention group compared with control participants examined the following programs:

- A multidisciplinary rehabilitation group for adults with COPD (Bendstrup et al., 1997)
- An occupational therapy group for adults with RA (Kraaimaat, Brons, Geenen, & Bijlsma, 1995)
- Primary therapist home care for adults with RA (Li et al., 2005).

These studies were all limited by small samples, and 1 was limited by the inclusion of participants who had previously received occupational therapy services (Kraaimaat et al., 1995).

Although in 1 case the validity of the finding is unclear because of the analysis method (Austin et al., 2005), it appears that multidisciplinary rehabilitation groups can improve health status or quality of life for adults with COPD or chronic heart failure.

Summary

Ten of the 16 studies found significant differences between intervention and control groups for at least one occupational outcome (see the online supplemental table). The studies that did not find differences between groups on any measure involved participants with RA and measured physical function only (Hammond et al., 1999, 2002; Li et al., 2006) or physical function and work only (Hammond

et al., 2004), involved participants with minimal baseline difficulties and early RA (Hammond et al., 2004), involved a short course of therapy (Hammond et al., 1999), and used small samples (Hammond et al., 1999, 2002; Kraaimaat et al., 1995; Li et al., 2005).

Interventions Provided in Groups

Seven studies used a group format and found improvement in one or more outcomes in the intervention group (see Table 2). Several characteristics were common to most interventions:

- *The interventions were multidisciplinary:* Five of the 7 programs involved a multidisciplinary team.
- *They provided social support:* All programs involved discussion among participants, and 3 programs included family members at groups (Austin et al., 2005; Hammond & Freeman, 2001; Masiero et al., 2007).
- *The interventions focused on coping with activities:* All programs promoted coping strategies such as stress management, relaxation, energy conservation, use of assistive devices, environmental modification, and, among the groups with participants with RA, joint protection.
- *They provided exercise:* Four studies that involved participants with cardiac problems or COPD provided exercise training. The 3 studies that did not involve exercise included participants with RA or depression (Hammond & Freeman, 2001; Masiero et al., 2007; Schene et al., 2007).
- *The interventions were tailored to individual participants:* All programs that found improvements in the intervention group used techniques such as goal setting, discussion of specific individual issues, and group problem solving to help participants reach their goals.
- *The interventions incorporated follow-through strategies:* Five of the 7 studies used strategies such as a follow-up program or visits (Austin et al., 2005; Finnerty et al., 2001; Schene et al., 2007), phone contact (Masiero et al., 2007), printed materials (Hammond & Freeman, 2001; Masiero et al., 2007), and referrals to other services (Finnerty et al., 2001) to encourage application of program material to everyday life.

These program characteristics are also supported by Hammond and Freeman's (2001) study. Although most studies compared the intervention to usual care, Hammond and Freeman compared 2 similar arthritis education programs, and their study can shed some light on specific aspects that may be valuable within chronic disease interventions. The more beneficial, experimental intervention involved peer support (participants' partners

attended), tailoring to individual participants (goal setting, feedback regarding individual progress, and discussion of individual [vs. generic] issues), and follow-through techniques (using printed materials). The control intervention did not include those components.

The group programs varied in delivery characteristics. They ranged in duration from 4 to 22 wk and involved 8–56 hr of intervention time. Most group interventions were 4–12 wk long and involved 4–18 sessions lasting 2–3 hr each.

Interventions Provided Individually

Four studies involved predominantly individual interventions and found improvement in one or more outcomes in the intervention group compared with the control participants. The diversity of the interventions involved and small number of studies make it difficult to determine similarities between studies. Two home-based occupational therapy interventions (Gitlin et al., 2006; Helewa et al., 1991) promoted coping with activities through prescription of assistive devices; home modifications; splinting; education about energy conservation, joint protection, and stress management; and problem solving regarding barriers to performance. Follow-through strategies included providing community resource information. Two studies involved vocational interventions (de Buck et al., 2005; Schene et al., 2007) and promoted coping with activities through education, adapting the work environment or work hours, and exploring work problems and strategies.

All individual interventions involved tailoring to individual participants through assessment and goal setting, and some used follow-through strategies such as follow-up contacts (Gitlin et al., 2006; Schene et al., 2007) to promote continuation and generalization of skills. The programs lasted several weeks to ≤ 1 yr.

Discussion

The reviewed evidence shows that interventions involving occupational therapy can improve function in BADLs and IADLs in people with COPD, RA, or multiple conditions. Occupational therapy can improve work outcomes for adults with depression and may improve social function in people with RA and COPD. The evidence suggests that physical function may not be affected by these interventions for people with RA and multiple conditions; however, this finding is contradicted by 2 studies suggesting that physical function can be improved by group multidisciplinary interventions. Multidisciplinary interventions can also improve psychological

health for people with RA and quality of life for people with COPD or heart conditions. Taken together, the evidence suggests that occupational therapy can improve occupational outcomes in people with a range of chronic diseases.

The diversity and limitations of the studies reviewed and the apparently modest effects of the interventions limit formation of firm practice guidelines. The review findings do, however, suggest several important aspects to include in interventions for adults with chronic diseases. These elements include an individualized program—achieved, for example, through goal setting—and individualized problem solving; family or peer support; strategies to promote coping with activities, for example through modification of the task or environment; and promoting continued use of strategies, achieved, for example, through follow-up phone contact.

These interventions are all in line with WHO's (2005) recommendations that health professionals should support self-management by clients with chronic diseases by facilitating coping skills, goal setting, self-monitoring, environmental modification, self-reward, and social support. WHO further recommended partnering among various health providers to improve client care, a strategy that has been highlighted through this review.

Several measurement issues were apparent in the studies reviewed. The results of all the studies may have been affected by the choice of outcome areas to measure and the tools that were used. For instance, it appears that occupational therapy interventions for people with chronic diseases can improve BADLs and IADLs, but not all studies tracked these outcomes. Physical function appears least affected by the interventions discussed, and it was tracked in many of the studies. Within the 9 studies that did not find improvements in the intervention group in physical function, 4 studies found improvements in other outcomes.

In terms of outcome measures used, the HAQ was used to measure physical function in 8 RA-related studies, 7 of which did not find significant results on that scale. A particular drawback of the HAQ is that its scores worsen if the person uses a device or personal assistance to complete a task (Ramey et al., 1992). In addition, 3 studies used BADL or IADL scales that had had little psychometric testing. The use of these scales suggests limited options in terms of measuring occupational outcomes.

Continued research regarding the effectiveness of occupational therapy interventions for adults with chronic diseases is greatly needed. Such research should address a greater variety of common diagnoses such as cardiac problems, COPD, depression, diabetes, and OA. Most studies included in this review had methodological limitations, and adequate sample sizes, appropriate

measurement tools, and stronger methods are needed to minimize bias. In addition, future studies need to determine the unique contribution of occupational therapy within multidisciplinary interventions, as well as examine the specific aspects of group interventions, such as duration or frequency of intervention, that contribute to positive outcomes.

The limitations of this review relate to the search strategy and the exclusion of articles that could have provided support for occupational therapy practice. The scope of the article was limited to selected diseases, and evidence may exist regarding other chronic diseases. In addition, the search strategy excluded non-RCT designs. RCT designs were selected because of the more rigorous methods used in these studies. Finally, the search excluded non-English language and unpublished or ongoing studies.

Conclusion

Although more research is needed, evidence indicates that occupational therapy interventions improve BADLs and IADLs, health, and quality of life for people with chronic diseases such as RA, COPD, chronic heart failure, and depression. The evidence suggests that similar occupational therapy interventions are applicable across a range of diagnoses and may be applicable to diagnoses beyond the scope of this review. The interventions commonly include goal setting, energy conservation, joint protection, exercise, assistive devices, and coping strategies. Occupational therapy practice for people with chronic diseases can be continued and built on to meet the increasing prevalence and needs of people with these conditions. ▲

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