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Research Article

Meeting the needs of elderly with bathing disability

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***Background/aims*:** *Difficulties with bathing are frequent among older people and are associated with an increasing need for societal support. As loss of independence has a negative impact on health and wellbeing, it is important to study interventions that can provide the required support for people to be able to remain independent. Occupational therapy interventions can improve clients' abilities enabling them to bathe themselves, thus reducing the need for other, more long-term societal support from, e.g. a home help. In this study, two groups of elderly people with difficulties in bathing were compared; the clients in the intervention group were engaged in occupational therapy.*

***Methods*:** *A quasi-experimental non-equivalent control group design was used, in which participants with reported difficulties in bathing were recruited consecutively from two municipalities. The clients in the intervention group routinely received occupational therapy, whereas clients in the control group received assistance from a home help for bathing. Activities of daily living, quality of life and home-help allocation were assessed at the baseline and after 15 weeks.*

***Results*:** *Clients in the intervention group received less than three home visits on average, with majority of interventions consisting of graded activity and the use of an encouraging approach. Seventy per cent of the interventions were adaptive. Activities of daily living and quality of life of both groups improved, but the differences of being allocated a home help were significant.*

***Conclusion*:** *Occupational therapy interventions seem beneficial in terms of supporting older people in becoming independent of home help in bathing but the results must be interpreted with caution as there were differences at baseline between the groups.*

KEY WORDS *activities of daily living, bathing, home care, quality of life.*

Introduction

For community-dwelling older people, functional decline is common because of a variety of different medical conditions (Gill, Desai, Gahbauer, Holford & Williams, 2001). Difficulties with bathing have been highlighted because a declining ability to perform this task is common among older people (Naik, Concato, & Gill, 2004). A diminished performance with bathing tends to precede difficulties in other daily tasks (Gill, Guo, & Allore, 2006, Jagger, Arthur, Spiers, & Clarke, 2001). Furthermore, a restricted ability to bathe satisfactorily is strongly associated with admission to a nursing home (Gill, Allore, & Han, 2006) and to the receipt of help from home-help services (LaPlante, Harrington, & Kang, 2002).

In Sweden, home-care services are part of the welfare system and are intended to assist elderly people who cannot manage their daily lives (SFS 2001:453) by helping them with the tasks that they cannot perform independently. The formal decision of *if* and *how much* home help a client is entitled to is made by a local municipality care manager. According to the Social Services Act, home-help services are intended to support the individual to enable him or her to become as independent as possible (SFS 2001:453). However, in contrast to this intention, The National Board of Health and Welfare (2006) describes how home-care services are often characterised by home-care personnel using compensatory strategies that reduce the clients' participation in activities of daily living (ADL). The subsequent lack of participation in ADL is likely to lead to a further decline in the ability of the person concerned to perform important daily tasks and to an increased dependency on social and societal support. Dependency on others (e.g. the need for home-care services) is also related to a decreased quality of life (Johanessen, Petersen, & Avlund, 2004) and therefore the caring services have an obligation to ensure that all efforts are made to ensure that clients remain as independent as possible.

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With knowledge of the negative impact dependency has on health and wellbeing, an alternative perspective could be taken: occupational therapy interventions have been shown to be valuable for improving the ability of elderly persons to perform ADL (Hagsten, Svensson & Gardulf, 2004, Gitlin, Swensson Miller, & Boyce, 1999). According to Fisher (2009), occupational therapy interventions implemented to improve a client's occupational performance can take two forms: acquisitional occupation or adapted occupation. The focus of acquisitional occupation is to support the client, enabling him or her to regain or develop the abilities required to perform the tasks involved in daily life through occupational skills training. Adapted occupation involves the use of compensatory strategies (e.g. technical aids, home modifications, and modified strategies that support the client as she/he attempts to perform daily life tasks).

For older persons, a restricted ability to bathe is common, and bathing is a task often serving as a sentinel event in the disabling process. Previous research gives some support to the proposition that occupational therapy interventions are effective at improving clients' ability to bathe (Gitlin *et al*., 2006). No clinical trial has been found examining whether occupational therapy specifically targeting clients' abilities to perform actions related to bathing can prevent individuals from becoming dependent on home help to perform this task.

The purpose of this study was to compare two groups being provided with home health care by their municipality to help with bathing. Clients in the 'intervention group' received occupational therapy interventions, whereas clients in the 'control group' received ordinary home-help services provided by the local municipality.

Method

Study sample and setting

For this study, a quasi-experimental non-equivalent control group design (Polit & Hungler, 1999) was used. Participants were recruited consecutively from two different municipalities in northern Sweden between February, 2006 and April, 2007. Data were collected from regular community care. The participants in both groups were community-dwelling older adults, aged 65 years, in the process of applying for help with bathing from a local municipality care manager. The application was the clients' first contact with their municipality in relation to difficulties with bathing. Initially, no assessment was made to determine the nature of the bathing-related disability. There were differences in the clinical routines used in making the assessment in the two municipalities. In the intervention group, clients routinely met an occupational therapist, whereas clients in the control group did not. Participants were excluded if they were unable to communicate by telephone. In the intervention group, 55 clients were available for participation. Three of these clients declined the intervention, one moved to a nursing home and five of the clients died. Those clients who were included in the intervention group were recruited in connection with discharge from hospital (n = 34) and home-dwelling (n = 12). In the control group, 32 clients were available for participation. One client declined the home-help service and three clients died during the period of the investigation. Those clients who were included in the control group were recruited in connection with their discharge from hospital (n = 21) and home-dwelling (n = 7). The baseline data on the clients' self-assessed ability to perform ADL and on their health-related quality of life are based on the replies received from 46 clients (intervention group) and 28 clients (control group). As a result of missing data from the second telephone interview, the follow-up included 44 and 27 clients from the interven-

TABLE 1: *Demographic characteristics of participants*

	Intervention group n = 46	Control group n = 28	P-value
Gender, women n (%)	36 (78)	18 (64)	0.189
Age, mean (range)	83.0 (68–97)	81.3 (65–91)	0.729
Living alone, n (%)	37 (80)	19 (68)	0.221
Living in an apartment, n (%)	34 (74)	21 (75)	0.917
Basic education, n (%)	39 (85)	22 (79)	0.496

Diagnoses	Intervention group n = 42	Control group n = 28
Infectious diseases, n (%)	3 (7%)	
Tumours, n (%)	1 (2%)	
Blood and immunological diseases, n (%)	1 (2%)	1 (3%)
Neurological diseases, n (%)	1 (2%)	
Circulatory diseases, n (%)	5 (12%)	8 (29%)
Respiratory diseases, n (%)	4 (10%)	2 (7%)
Diseases of the digestive system, n (%)	1 (2%)	
Musculosceletal diseases, n (%)	8 (20%)	5 18%)
Injuries, n (%)	13 (31%)	9 (32%)
Symptoms and signs, n (%)	5 (12%)	3 (11%)

tion and control groups respectively. The participants were given oral and written information, and informed consent was obtained. The Ethical Committee at Umeå University approved the study Dnr. 06-004M. The participants' demographic characteristics are presented in Table 1.

The diagnoses were categorised according to the ICD-10 (WHO, 2009a,b) based on information obtained from the occupational therapists (intervention group) or the clients (control group). As the protocols were missing for four clients in the intervention group, diagnoses were only available for 42 clients.

Data collection instruments

Comparisons were made of the ability to perform ADL, health-related quality of life and the amount of home-help time allocated to assist with bathing.

The ADL-taxonomy was chosen to assess the ability of the clients to perform ADL (Törnquist & Sonn, 1994). The ADL-taxonomy was used to describe the clients' ability to perform ADL at three levels; occupational forms, activities and actions. Originally, it comprised 12 activities that can be seen as common to and generic for most people. Each activity consists of several hierarchical ordered actions and incorporates between three and seven different tasks. In this study, four of the activities, involving a total of 19 actions related to bathing were used (mobility, dressing, personal hygiene and grooming). Specifically for this study, the clients were asked to describe their ability to perform each action using a four-point scale (can perform this easily, can perform this with slight difficulty, can perform this with severe difficulty, cannot perform the task in question).

The EQ-5D questionnaire was used to assess health-related quality of life (Brooks and The Euroqol group, 1996). This instrument addresses five domains (mobility, self-care, usual activities, pain/discomfort and anxiety/depression) each of which is assigned to responses at one of three levels (no problem, some problem, severe problem/unable to do). EQ-5D generates a possible 343 levels for the state of health of the person under consideration. The value of each level on the scale defining the state of health can be transformed to a single index score by using information from the five dimensions. The valuation of the state of health of the participants in this study uses the tariff presented by Dolan, Gudex, Kind, and Williams (1995). EQ-5D has been used in clinical studies conducted on elderly clients and has been assessed for reliability and validity (Tidemark, Bergström, Svensson, Törnkvist, & Ponzer, 2003).

Occupational therapy interventions were registered in a protocol by each occupational therapist (n = 15) in which the interventions were specified according to the number of sessions provided, the time of each session and the type of intervention (e.g. acquisitional or adaptive), as well as the measures undertaken, any technical aids provided and environmental adaptations made.

Procedures

Care managers in both communities reported the names of clients willing to participate to the first author and supplied the relevant personal information to enable them to be contacted. The report included information outlining if home help had been allocated and, if so, the amount of time (minutes each week). In the intervention group, *none* of the participants was allocated home-help services until an occupational therapy assessment had been carried out. In the control group, *all* participants were allocated home help, with the amount of time being determined on the basis of the care manager's assessment. Information was collected at a follow-up to determine whether the decision about the allocation of a home help had been reviewed, and if so, when this decision had been made and if the amount of time allocated had been changed. The first author interviewed the clients by telephone within two weeks of the time when clients were included in the study (providing the baseline information), and then again after 15 weeks, at the follow-up.

Clinical routines in the intervention group

The discharge of the elderly patients from the hospital was preceded by a pre-discharge planning meeting attended by the client, personnel on the ward, and a municipality team consisting of a care manager, a district nurse, an occupational therapist and a physiotherapist. Those clients requesting help with bathing subsequently met an occupational therapist at home, where they were assessed and received interventions in accordance with the occupational therapy assessment and their individual needs. The interventions addressed different issues of performance, with the aim of providing the support that the clients needed to perform the relevant tasks safely and as independently as possible. Interventions ended when the client had achieved independence or when the occupational therapist judged that further interventions would have no effect. The occupational therapy assessment and intervention were part of the decision-making process to determine whether home-help services should be granted or not. For clients still in need of help, a home help was allocated based on the information received from the occupational therapist.

Clinical routines in the control group

Prior to being discharged from hospital, a pre-discharge planning meeting also took place with the clients in the control group, and involved personnel on the ward and a care manager from the municipality. Those clients requesting help with bathing were allocated home-help services when deemed necessary by the care manager. Clients in the control group received no occupational therapy from their municipality.

Statistical analyses

SPSS version 15.0 (IBM, Chicago, IL, USA) was used. Differences between the groups regarding their perceived ability to perform ADL (ordinal data) were analysed with a Mann–Whitney *U*-test and the change within each group was analysed with Wilcoxon's signed ranks test (Polit & Hungler, 1999). Data from EQ-5D (interval data) have been analysed with *t*-tests and paired samples *t*-tests. Differences in frequencies and in the amount of time allocated for a home help were analysed with a *t*-test. *P*-values of ≤ 0.05 were regarded as statistically significant.

Results

Ability to perform ADL

At baseline, self-reported ability to wash body/bathing/showering showed a significant difference ($P = 0.007$) with clients in the control group experiencing a higher degree of difficulty, Figure 1. No other significant difference was found between the intervention group and the control group at the baseline. At the follow-up, the self-reported ability of the clients to wash their hands and face showed a significant difference ($P = 0.017$). Of the 19 activities concerned, seven activities demonstrated significant improvement in both groups (transfer in bed, transfer from bed to chair, walking in and out of house, undress, dress lower trunk, putting on socks and shoes, washing body), six activities demonstrated significant improvements only in the intervention group (walking inside, walking in neighbourhood, getting clothes from wardrobe, washing hair, combing hair, manicuring), two activities demonstrated significant improvement only in the control group (walking from one floor to another, dress upper trunk); and in four activities, no improvement was demonstrated in either group.

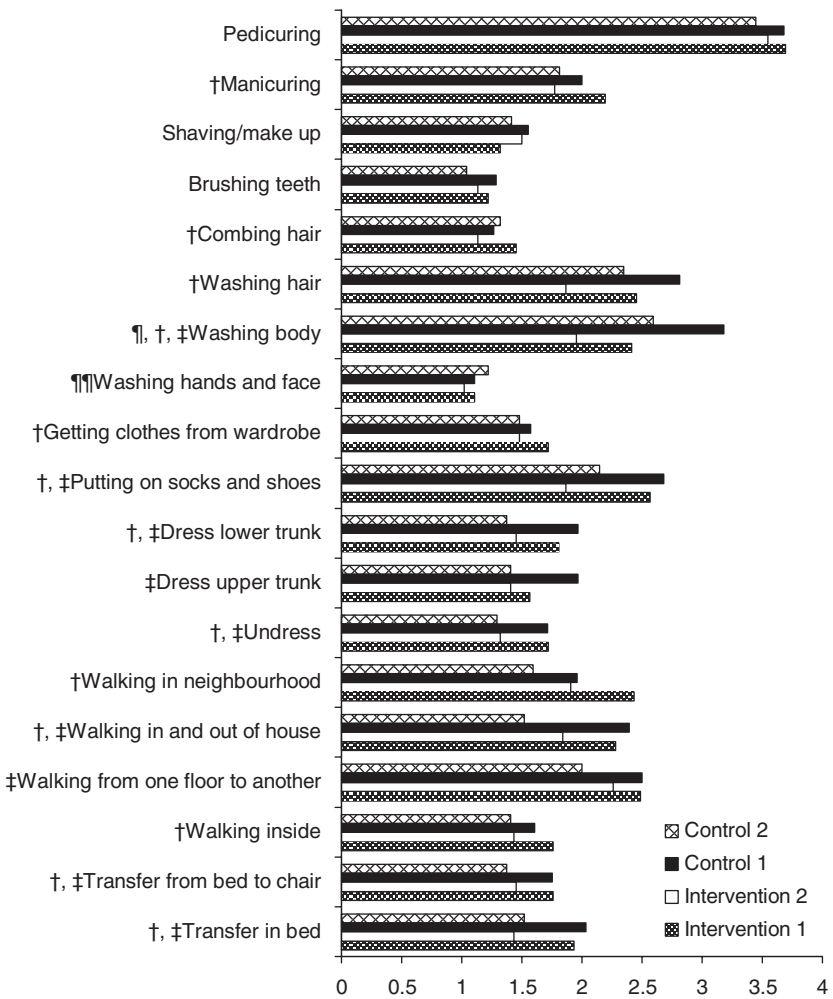

FIGURE 1: *Activities of daily living (ADL). Mean values at baseline (intervention 1 and control 1) and at follow-up (intervention 2 and control 2). Values indicate the clients self-assessed ability to perform actions: easily (1), with slight difficulty (2), with severe difficulty (3) or not at all (4). ¶Baseline difference between groups, ¶¶follow-up difference between groups, †improvements in intervention group, ‡improvements in control group.*

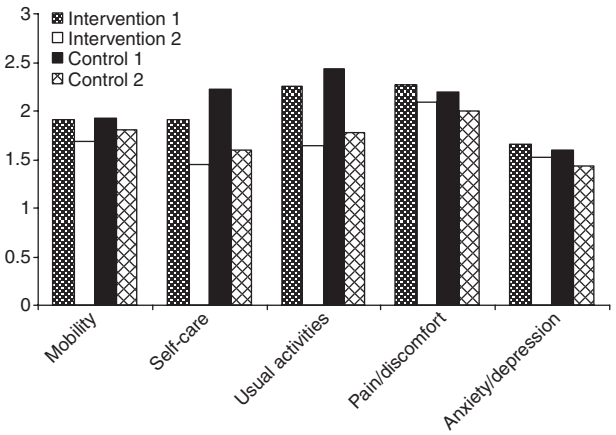

FIGURE 2: *Domain specific mean values at baseline (intervention 1 and control 1) and at follow-up (intervention 2 and control 2). 1 indicates no problem, 2 some problems and 3 severe problems.*

Health-related quality of life

Comparisons have been made for each domain of the health index: mobility, self-care, usual activities, pain/discomfort and anxiety/depression, as well as for health-related quality of life (EQ-5D value), Figure 2. At the baseline, as well as at follow-up, there was no significant difference in any of the five domains or for health-related quality of life between the groups. Clients in both groups improved their health-related quality of life. Of the five domains, both groups improved significantly in two (self-care and usual activities), two domains demonstrated significant improvement only in the intervention group (mobility and pain/discomfort). There was no significant improvement in the anxiety/depression domain.

Allocated home care

At the follow-up, 14 clients (30%) in the intervention group were being allocated home-help time for assistance bathing, which was significantly fewer ($P < 0.001$) than the 21 clients (75%) in the control group who were provided with home help for this purpose. The average time allocated for home help between the baseline and the follow-up was significantly different ($P < 0.001$) in the two groups, with 97 minutes being the average in the intervention group compared with 786 minutes in the control group. For those clients allocated home care for bathing, the average weekly time was significantly different ($P < 0.001$) for the intervention group (31 minutes) compared with the control group (66 minutes).

Occupational therapy interventions

Interventions were conducted in the clients' home. Protocols were missing for 4 clients therefore the results are based on data obtained for 42 clients. The occupational therapists made 123 home visits, with a total time of 83 hours and 45 minutes. In average, each client was visited on 2,9 occasions (1–12) with an average time over the whole intervention period of 120 minutes (10–500 minutes). During these interventions, 180 actions initiated by the occupational therapist were registered. The distributions of the action taken when providing occupational therapy for each type of intervention are presented in Table 2.

TABLE 2: *Distribution of occupational therapy actions, n = 180, within adaptive and acquisitional intervention*

Type of intervention	Adaptive *n* (%)	Acquisitional *n* (%)	Total *n* (%)
Assistive devices	28 (15)	3 (2)	31 (17)
Environmental adaptations	17 (9)	1 (1)	18 (10)
Graded activity	30 (17)	22 (12)	52 (29)
Encouraging approach	34 (19)	27 (15)	61 (34)
Adapted activity performance	18 (10)		18 (10)
Total, *n* (%)	127 (70)	53 (30)	180 (100)

Graded activity and an encouraging approach made up 63% of all occupational therapy actions independent of type of intervention, whether it was adaptive or acquisitional**.** Graded activity included actions in which the therapist adjusted his/her level of support to the client and gradually altered or withdrew this support depending on the ability of the client. Encouraging approach included actions in which the therapist provided emotional support and reassurance so that the client should feel encouraged in performing different tasks. In all, 32 clients (76%) received occupational therapy based on graded activity and an encouraging approach. Twenty-five clients (60%) received assistive devices and/or environmental adaptations. Twelve clients received acquisitional interventions and thirty clients received adaptive interventions. On average, an acquisitional intervention was more extensive than an adaptive one, yet the difference was non-significant where both the number of home visits ($P = 0.053$) and the total amount of time for the intervention were concerned ($P = 0.219$). Acquisitional interventions included 3.9 (1–12) home visits taking an average total time of 151 minutes (45–500). Adaptive interventions required 2.5 (1–6) home visits, with an average total time of 107 minutes (10–390).

Discussion

In this study, the clients in both groups revealed an improvement in their ability to perform actions related to bathing. Yet, there is a major difference between the two municipalities concerning the number of clients'

allocated home help for bathing after intervention. More frequent improvements in the intervention group regarding ADL and health-related quality of life supports the supposition that occupational therapy is efficient, but limitations in the design weaken this study. A circumstance that must be considered is that clients in the control group reported significantly greater difficulties in bathing at baseline. Both groups improved, but at the follow-up, the clients in the control group still experienced greater difficulties in performing the required task, although not significant. Based on these findings, it is logical that clients in the control group were allocated a home help to provide assistance with bathing more frequently.

A significant difference in the allocation of home help does not necessarily mean that clients were more autonomous in the intervention group. They managed without a home help, but the results do not reveal whether they had to rely on informal caregivers instead, or, indeed provide any information on the quality of their occupational performance. To what extent did the clients manage to bathe in a safe manner and expending a reasonable effort? No information is provided on these aspects in this study. Did occupational therapy reduce the need for clients to depend on a home help when bathing, or was the threshold for being allocated a home help higher in the municipality in which the intervention group was located? Based on data from this trial we can not conclude what the case is. Nevertheless, in the context of how societal support can be provided to clients requesting help with bathing, the mechanisms underpinning occupational therapy interventions are relevant to discuss.

By implementing occupational therapy in the decision-making process for allocating home-help services, the intervention group developed a strategy to support clients enabling them to develop their abilities, thereby regaining control over their lives by making it possible for them to perform bathing independently. According to Janlöv, Rahm-Hallberg, and Petersson (2006), it is vital that people who enter a phase in life where a limited ability to perform daily tasks and restricted participation become apparent, receive support in a way that empowers them so as to enable them to remain in, or regain, control over events that occur in their lives. In the transition from independence to becoming dependent on others, older people feel unsure about the extent to which their declining abilities are part of normal ageing and whether and how these problems can be attended to (Nilsson, Sarvimäki, & Ekman, 2000). Even if restricted ability is related to old age, it is important that the design of the societal support takes each individual client's specific situation into account and offers interventions that develop, or at least preserve, all clients' ability to perform daily tasks. This study suggests that occupational therapy can be a part of such societal support.

Through an occupational therapy intervention, clients have been supported while they explore their ability to conduct bathing, and they have been encouraged to increase gradually their independent performance of this task. Majority of the clients were able to find new ways of performing the task through the application of assistive devices, environmental adjustments and adapted activity performance. Overall, an important tool in the intervention has been the therapists' conscious use of self (Kielhofner & Forsyth, 2002). The most frequent actions, the use of graded activity and adopting an encouraging approach were based on what Kielhofner and Forsyth (2002) described as therapeutic strategies. These strategies are actions that the therapist uses during treatment sessions with the client, with the ultimate aim of affecting the clients' ability and thoughts and feelings about his or her ability to perform bathing. Guidetti and Tham (2002) described how occupational therapists adjust self-care training situations to find a balance between the challenges inherent in the task and the ability of the client concerned. As a clients' ability improves, the occupational therapist gradually withdraws the physical and verbal support and presence, with the ultimate aim being that the client should gain a feeling of autonomy and independence. Occupational therapy interventions registered in this study may be described as a supportive interaction between the occupational therapist and the client that evolves over a few sessions, gradually bringing control back to and empowering the client.

Prescription of assistive devices and environmental adaptations are common occupational therapy interventions. In this study, 25 clients (60%) received measures falling in one or both of these categories. Previous research supports the positive effects of interventions like these that improve a client's ability to bathe (Gitlin *et al.*, 1999). Interventions that are conducted in the home of the client can be tailored to meet each client's specific need for information and support, which has the effect of improving ability, as well as satisfaction (Chiu & Man, 2004).

A logical consequence of the significant difference in the number of clients' who were allocated home care is the amount of time allocated for home care in each group. The considerable difference is attributable partly to the number of clients who received home help but also the weekly average time for which a home help was allocated. The average time allocated for those clients who received home care differs between the groups. Allocation in the intervention group was affected by the information obtained through occupational therapy assessments. These assessments were carried out while conducting the actual task posing difficulties in the client's home, and therefore yielded detailed information about the clients' ability and possible need for assistance. The occupational therapists' aim was to enable the client to participate as much as possible, in contrast to the

conventional assessment made by a care manager, which emphasises how needs could be met through the provision of home-based care. This alone is probably not the only factor to influence the amount of home help allocated to clients as local policies can also explain differences in home-care volume between municipalities (Meinow, Kåreholt, & Lagergren, 2005).

Limitations

The quasi-experimental design of this study was chosen to make it possible to compare two groups that were as similar as possible. Still, there were baseline differences that showed that the groups were not equal on the measures being used. Another difference was the proportional distribution of diagnoses, which mainly consisted of diseases of the circulatory system and infectious diseases. Diagnoses were reported differently in the two groups, which could be a source of error. Many older people also have several diagnoses, but for the purpose of this study, only one was registered. The clients' cognitive status was not assessed, but could have had an impact on the outcomes. The design of the study led to the situation in which only those clients who agreed to participate in the study were reported to the first author. There is no information on missing data relating to clients who declined or were not asked to participate. Furthermore, it is not known whether some of the clients in either group had had assistive devices prior to this trial, or if clients in the control group had received assistive devices from occupational therapists at hospital or primary health care or district nurses during the trial.

Implications for practice and future studies

Municipalities choose different approaches to assess the need for support for older people and also the means of how to provide such support. Demographic changes in the coming decades will challenge municipalities to find strategies for meeting the needs of the elderly population. This study indicates that offering occupational therapy may be beneficial for the municipality, but further research is needed to confirm or reject the supposition occupational therapy is beneficial for clients with difficulties in bathing. Future research should consider randomisation and a masked evaluation to strengthen the method. The follow-up in this study was made at 15 weeks, but it would also be interesting to examine the long-term effects of the occupational therapy interventions and to compare them with the long-term effects in a control group. A health economic analysis could also be relevant as both cost and outcomes are important for discussions about societal resources. A qualitative study would increase our understanding of the experiences of clients receiving occupational therapy interventions and allow a comparison to be made with those clients receiving a home-care service.

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