Age and Ageing 2001; **30:** 415–418

SYSTEMATIC REVIEW

The impact of geriatric post-discharge services on mental state

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Abstract

Objective: to determine the impact of geriatric post-discharge services on mental state.
Methods: three computer databases, MEDLINE, HealthSTAR and the Cochrane Database of Systematic Reviews were searched for relevant articles; the bibliographies of retrieved articles were searched for additional references.
Results: 11 trials were located that met the four inclusion criteria: (i) original study; (ii) published in English or French; (iii) controlled trial (randomized or non-randomized) of a geriatric post-discharge service; and (iv) including at least one measure of mental state. All trials met most of the validity criteria for intervention studies of the Evidence-Based Medicine Working Group. Three trials reported a small effect on emotional state or self-perceived health and eight trials reported no effect.
Conclusion: there is little evidence that geriatric post-discharge services have an impact on the mental state of aged subjects. Future services and studies should be designed to address the issue of mental state outcomes in this population.

Keywords: *geriatric services, mental disorder, review*

Introduction

Although most elderly people enjoy good health, many have multiple illnesses or disabilities and may require a spectrum of geriatric diagnostic and treatment services. Accordingly, recommended geriatric health services include a variety of hospital units, consultation teams, clinics and surveillance programmes [1].

Because mental disorders are a major cause of morbidity in aged patients, it is important to determine the impact of these geriatric health services on mental state. Over the past two decades, services have been developed to try to meet the needs of an especially vulnerable population—elderly patients recently discharged from medical and rehabilitation units. This review aims to determine the impact of these geriatric post-discharge services on mental state by reviewing all controlled trials of such services. The review process, modified from Oxman *et al.* [2], involved systematic selection of articles, assessment of validity, abstraction of data and examination of results.

Methods

Selection of articles

The selection process involved four steps. First, the computer databases MEDLINE and HealthSTAR were searched for potentially relevant articles published from January 1975 to May 2000 using the keywords 'home care services' (exploded) or 'patient readmission' (exploded) and 'aged' and 'clinical trials' (exploded). The Cochrane Database of Systematic Reviews (Issue 1, 2000) was also searched using the key words 'health services for the aged' and 'clinical trials'. Secondly, based on the title and abstract, relevant reports were retrieved for more detailed evaluation. Thirdly, the bibliographies of relevant reports were searched for additional references. Finally, all retrieved articles were screened to meet the following four inclusion criteria: (i) original research; (ii) published in English or French; (iii) controlled trial (randomized or non-randomized) of a

geriatric post-discharge service; (iv) including at least one measure of mental state.

Assessment of validity

To determine validity, the methods and design of each study were assessed according to the six criteria described by the Evidence-Based Medicine Working Group [3]: (i) randomized study; (ii) no clinically significant differences between groups reported at baseline; (iii) equal treatment of groups except for the intervention; (iv) blind rating of outcomes; (v) complete follow-up of all subjects enrolled in the trial; and (vi) intention-to-treat analysis (outcome data analysed according to the groups to which subjects were assigned initially).

Abstraction of data

Information about the study design, subject selection, interventions, length of follow-up, outcome measures and results were systematically abstracted from each report and tabulated.

Data synthesis

A qualitative meta-analysis was conducted by comparing and contrasting the abstracted data.

Results

Selection of articles

The computer search identified 98 potentially relevant articles. Following retrieval of relevant articles and review of their bibliographies, 23 reports were screened to meet the inclusion criteria. Eleven [4–14] met all the criteria (Table 1). Excluded studies did not meet criteria 3 ($n=3$) or 4 ($n=6$) or a combination of the two ($n=3$).

Assessment of validity

Most studies met most of the six validity criteria.

Data synthesis

The results of the 11 trials are summarized in Table 1. Five trials were conducted in the USA, three in the UK and one each in Sweden, Australia and Germany. All were randomized trials. Samples varied from 54 to 903 subjects. Enrolled subjects were aged 60 years and over in one study, 65 years and over in six studies, 70 years and over in one and 75 years and over in one. Two studies had no age criterion but most enrolled subjects were elderly.

The type of geriatric post-discharge service varied from one study to the next. In five studies, a multidisciplinary team (physician, nurse, physiotherapist, occupational therapist, social worker or support workers) assessed and followed the patient; in three studies, a nurse assessed and followed the patient; in two studies, a home aide/attendant provided help and, in one other study, a volunteer visited. Services were usually provided for several weeks after discharge (range 2 weeks–12 months). Most studies did not provide any information on the actual process of care during the intervention period.

Outcome evaluations occurred between 2 weeks and 12 months after the initial assessment. Mental status outcome measures varied from study to study and included depression, morale, life satisfaction, contentment, emotional function, social activities, self-perceived health or cognition. Three studies reported small effects on morale, contentment, emotional function, life satisfaction or self-perceived health; eight reported no differences between intervention and control groups. Across studies, there were no relationships between the subject selection criteria, type of post-discharge service, length of follow-up or outcome measures and positive effects.

Discussion

To date, 11 trials have examined the impact of geriatric post-discharge services on mental state. Three reported small effects on emotional state or self-perceived health and eight reported no effect. Thus, geriatric post-discharge services appear to have little impact on the mental state of aged subjects. This finding is similar to that of a recent review of controlled trials of geriatric home screening services [15].

The apparent lack of impact on mental state of most of the services may reflect the ineffectiveness of the post-discharge approach. However, five aspects of the design of these trials may have contributed to this apparent ineffectiveness. Firstly, participants in these trials may have been selected to exclude those with depression or cognitive impairment, thus limiting the degree to which improvement could be demonstrated. Secondly, most of these trials focused primarily on the assessment and treatment of physical and functional disorders rather than mental disorders. Thirdly, in many trials, the outcome assessment occurred many months after the end of the intervention when the benefits may have disappeared. Fourthly, some mental state outcome measures may not have been sensitive enough to detect change. Fifthly, all important mental state outcomes (i.e. cognition, depression and anxiety) were not measured in all trials. Future studies of geriatric post-discharge services should be designed to assess and treat mental as well as physical and functional disorders, and ensure the timely completion of sensitive measures of cognition, depression and anxiety.

This review has methodological limitations. The literature search was limited to articles published in English or French because resources were not available to translate articles written in other languages. The

Table 1. Summary of randomized trials assessing the effectiveness of geriatric post-discharge services

Study	Country	*n*	Selection criteria	Type of service	Follow-up	Outcome measures	Results[a]
Nielsen *et al.*, 1972 [9]	USA	100	Age ⩾60; not requiring intensive nursing/custodial care, in an institution or receiving home help	Home aide available for 12 months	2 weeks after discharge; 6 and 12 months after enrolment	Contentment—self-rated and observer-rated	More observer-rated contentment at 12 months
Mor *et al.*, 1983 [7]	USA	142	Discharged to a community setting from a rehabilitation unit	Monthly visits by a friendly visitor	12 months	Zung Depression Scale; Philadelphia Morale Scale; Social Interaction; Mental Status Questionnaire	No difference
Townsend *et al.*, 1988 [14]	UK	903	Age ⩾75; discharged home	Home care attendant on first day home and 12 h/week for 2 weeks	3 months	Philadelphia Morale Scale	No difference
Melin & Bygren, 1992 [6]	Sweden	249	Age ⩾65; discharged home; dependent in 1–5 ADLs; not demented or aphasic	Home care team (physician, district nurse, physiotherapist, occupational therapist, nurse, secretary)	6 months	Mini-Mental State Exam; social activities and contacts	No difference
Martin *et al.*, 1994 [5]	UK	54	Age ⩾65; discharged home; not needing two people for transfers	Home treatment team 3×/day for up to 6 weeks	6, 12 and 52 weeks after discharge	Abbreviated Mental Test; Philadelphia Morale Scale	No difference
Rich *et al.*, 1995 [11]	USA	282	Age ⩾70; with congestive heart failure + one risk factor for readmission; no severe mental disorder or terminal illness and not receiving long-term care	Multidisciplinary (physician, nurse, dietician, social worker) intervention (education, medication review, discharge planning, intensive after-care)	90 days after discharge	Emotional function	Improved emotional function
Donald *et al.*, 1995 [4]	UK	60	Age ⩾65; discharged home	Hospital-at-home (nurse, physiotherapist, occupational therapist, three support workers) for 4 weeks	4, 12 and 26 weeks after enrolment	Philadelphia Morale Scale	No difference
Siu *et al.*, 1996 [12]	USA	354	Age ⩾65	Pre- and post-discharge assessment by nurse practitioner; team meeting; recommendations to family physician	30 and 60 days after discharge	Mental health index of SF-36; quality of well-being	No difference
Stewart *et al.*, 1998 [13]	Australia	762	Discharged home, chronic illness; no terminal illness	High-risk patients visited at home by nurse and pharmacist; monitored by nurse	1 and 3 months after enrolment	Psychological and social function (SF-36)	No difference
Nikolaus *et al.*, 1999 [10]	Germany	545	Age ⩾65; living at home before admission; multiple chronic illnesses; at risk of nursing-home placement; no terminal illness or severe dementia	Comprehensive geriatric assessment followed by either in-hospital and post-discharge treatment or usual follow-up, compared with usual care	12 months after enrolment	Mini-Mental State Exam; Social Activities Life Satisfaction; self-perceived health	Post-discharge service resulted in better life satisfaction and self-perceived health
Naylor *et al.*, 1999 [8]	USA	363	Age ⩾65; admitted from home; medical or surgical patients with one of seven conditions; alert and oriented; one risk factor for poor outcome	Discharge planning and home visits by advanced practice nurse from admission to 4 weeks after discharge	2, 6, 12 and 24 weeks after discharge	Center for Epidemiologic Studies—Depression	No difference

[a]Significant difference ($P < 0.05$) between intervention and control groups.
ADL, activities of daily living.

selection of articles and the assessment of validity might have been conducted by at least one other reviewer, each of us blind to the other's decision and the extent of agreement recorded. The examination of the results was complicated by differences in the interventions, lengths of follow-up and outcome measures from one study to the next. Finally, because of the relatively small number of studies and the heterogeneity in the interventions and psychosocial outcomes, a quantitative meta-analysis was not conducted.

Conclusion

To date, there is little evidence that geriatric post-discharge services have an impact on the mental state of aged subjects. Future services and studies should be designed to address the issue of mental state outcomes in this population.

Key points

- A review of 11 controlled trials of geriatric post-discharge services reveals that there is little evidence that geriatric post-discharge services have an impact on mental state.
- Few of the trials involved adequate assessment, treatment or measurement of mental disorders.

References

1. World Health Organisation. Planning and Organization of Geriatric Services. Technical Report Series no. 508. Geneva: WHO, 1974.

2. Oxman AD, Cook DJ, Guyatt GH. Users' guides to the medical literature: VI. How to use an overview. J Am Med Assoc 1994; 272: 1367–71.

3. Guyatt GH, Sackett DL, Cook DJ. Users' guides to the medical literature II. How to use an article about therapy or prevention B. What were the results and will they help me in caring for my patients? J Am Med Assoc 1994; 271: 59–63.

4. Donald IP, Baldwin RN, Bannerjee M. Gloucester hospital-at-home: a randomized controlled trial. Age Ageing 1995; 24: 434–9.

5. Martin F, Oyewole A, Moloney A. A randomized controlled trial of a high support hospital discharge team for elderly people. Age Ageing 1994; 23: 228–34.

6. Melin AL, Bygren LO. Efficacy of the rehabilitation of elderly primary health care patients after short-stay hospital treatment. Med Care 1992; 30: 1004–15.

7. Mor V, Granger CV, Sherwood CC. Discharged rehabilitation patients: impact of follow-up surveillance by a friendly visitor. Arch Phys Med Rehabil 1983; 64: 346–53.

8. Naylor MD, Brooten D, Campbell R *et al.* Comprehensive discharge planning and home follow-up of hospitalized elders: a randomized clinical trial. J Am Med Assoc 1999; 281: 613–20.

9. Nielsen M, Blenkner M, Bloom M *et al.* Older persons after hospitalization: a controlled study of home aide service. Am J Public Health 1972; 62: 1094–1101.

10. Nikolaus T, Specht-Leible N, Bach M *et al.* A randomized trial of comprehensive geriatric assessment and home intervention in the care of hospitalized patients. Age Ageing 1999; 28: 543–50.

11. Rich MW, Beckham V, Wittenberg C *et al.* A multidisciplinary intervention to prevent the readmission of elderly patients with congestive heart failure. N Engl J Med 1995; 333: 1190–5.

12. Siu AL, Kravitz RL, Keeler E *et al.* Postdischarge geriatric assessment of hospitalized frail elderly patients. Arch Intern Med 1996; 156: 76–81.

13. Stewart S, Pearson S, Colin GL, Horowitz JD. Effects of home-based intervention on unplanned readmissions and out-of-hospital deaths. J Am Med Assoc 1998; 46: 174–80.

14. Townsend J, Piper M, Frank AO *et al.* Reduction in hospital readmission stay of elderly patients by a community based hospital discharge scheme: a randomised controlled trial. Br Med J 1988; 297: 544–7.

15. Cole MG. Impact of geriatric home screening services on mental state: a systematic review. Int Psychogeriatr 1998; 10: 97–102.

Received 31 October 2000; accepted in revised form 7 March 2001