Effects of preventive home visits to the elderly

Summary

Prevention is said to be better than cure. This is the underlying idea of preventive home visits by public health nurses to elderly people. The visits aim, through regular assessment and follow-up of the functional abilities, to enhance the independent functioning of elderly people living at home. More specifically, it has been claimed that such visits improve the health status of aged persons, and reduce their use of (expensive) institutional care. This dissertation reports on a controlled experiment in the Netherlands, in which we studied whether the visits (as some previous studies had suggested) did indeed accomplish these presumed benefits. After the study has been introduced in chapter 1, chapters 2 to 5 and chapter 8 deal with this central question.

Participants were selected for the study by means of postal questionnaires. The questionnaire was sent out to every person aged 75-84 living at home in one of the southern regions of the Netherlands (n=1,545). Of the subjects who completed the questionnaire and who were not receiving home nursing care on a regular basis, 580 were selected for the experiment. These participants were stratified on four prognostic characteristics (self-rated health, gender, composition of household and social class) and then randomly allocated to the intervention or the control group.

The intervention group (n=292) was visited four times a year over a period of three years by experienced public health nurses. The nurses were employed specifically for the study, and each subject was visited by the same nurse during the entire intervention period. In addition to the regular visits, extra visits could be paid if necessary. Participants could also contact 'their nurse' by phone every day to discuss health problems. During the visits, which lasted about 45 to 60 minutes, the nurses discussed the health status (in a broad sense) with the participants, and gave information and advice. This included referral to other health care workers (about half of the subjects were advised to contact another service; almost 40% of these referrals were to the general practitioner). The control group (n=288) received no home visits, but the subjects in this group could use or apply for all the regular services as before.

To study the effects of the visits on the health status of the participants, the postal questionnaire was sent out again halfway through (after 1.5 years), and at the end of the intervention period to all subjects still alive. The response was 97% on both measurements (among 528 and 493 subjects respectively). Shortly after the last postal measurement, the participants were also interviewed in their homes by independent interviewers (response 92%).

To trace the impact of the visits on the use of services, relevant community and institutional care services concurrently recorded during the three year period whether subjects used their services. These organizations were not informed whether participants were receiving the home visits or not. On the basis of these data, the costs of service use were calculated for each group.

We were unable to demonstrate any beneficial effects of the visits on the health status of the subjects. The intervention group did not show better scores on self-rated health, functional status (activities of daily living and household activities), or various health complaints. As regards self-rated health, for instance, both visited and

non-visited subjects gave themselves, halfway through the study and after three years, an average of about 7 points for their health on a scale ranging from 0 (poor health) to 10 (excellent health). Neither were effects of the visits found with respect to aspects of well-being ('optimism' and 'morale'), loneliness, or measures of mental status (depressive complaints and memory disturbances). It turned out that fewer visited subjects had died during the three year period (14% versus 17% of the control group), but this difference was small and had disappeared after 3.5 years.

In general, the use of community care services increased slightly in the intervention group. More subjects in this group received home help and home nursing care, whereas the contact rate with the general practitioner was similar for the two groups. For some of the services (home help and meals on wheels), large differences in the frequency of use were found. Further analyses revealed that these differences could be attributed mainly to those subjects in the intervention group who had already been profiting from these services at the start of the study.

As far as a reduction in institutional care was found, this was restricted to more specialised forms of care. More subjects in the control group (66% versus 55% of the intervention group) were referred by their general practitioner to hospital outpatient clinics. Subjects in the control group also had a 40% increased chance of being admitted to the hospital (incidence rate ratio 1.4, 90% precision interval from 1.2 to 1.6). Over the three year period, however, the reduction in hospital days was small (about one day per person per year). No differences in long term institutional care were found, in terms of admissions to homes for the elderly and nursing homes.

Finally, a comparison of the costs of the use of community and institutional care showed that the health care expenditures per person were not lower in the intervention group. The expenditures per person in the intervention group exceeded those in the control group by 4%.

The results show that it does not seem useful to focus the preventive home visits on the general population of elderly people living at home. This population is probably 'too healthy' to gain beneficial effects. A second factor that would seem to make it difficult for the visits to accomplish positive effects in this population is that a fairly extensive health care system for the elderly is already available.

In addition to the effects of the home visits on the total study population, we explored whether subjects with specific characteristics benefited more from the regular attention by the visiting nurses. It turned out that the visits seemed to have been effective for subjects with a poor perceived health status at baseline. No large and consistent beneficial effects were found for other subgroups, such as subjects living alone, or participants who reported functional disabilities at the start of the experiment.

When subjects with poor health in the intervention group (n=57) were compared with subjects in the control group with a similar health status at baseline (n=53), the intervention group scored better on, among other things, self-rated health and functional status (household activities). In addition, 3 year mortality rates were lower among these visited subjects (24% versus 41% of the non-visited persons with poor health).

The use of community care among the visited subjects in this subgroup showed a more striking increase compared to the total groups. Large effects in favour of the intervention group were found with respect to referrals to outpatient clinics and hospital admissions. Nearly the entire difference in number of hospital

days for the total groups turned out to be based within this subgroup. On average, these visited subjects spent 19 days per person less in the hospital during the intervention period (or about 6 days per year). On the other hand, more visited subjects in this subgroup had been admitted to homes for the elderly. Despite the large reduction in hospital days, the health care expenditures per person in the two subgroups were similar.

It was remarkable that positive effects of the visits for subjects with poor health already emerged during the first year of intervention, whereas the second and third years hardly added to these differences. No differences in health status and use of services were found for those participants in the two groups who assessed their health status more positively at baseline. These findings suggest that the nurses were able to detect and intervene in the most striking health problems right from the start, and that hardly any beneficial effects could be gained among subjects with a (fairly) good health status. If this is true, a revision of the original ideas behind the programme is needed. Regular visits to healthy subjects aimed at preventing future health problems appear not to be effective. The data indicate quite the opposite: benefits can only be gained when health problems are already present. As a consequence, this means that the target population for the preventive visits might be considerably reduced.

Hence, if special consideration is to be given to elderly people living at home, regular assessment and follow-up focussing on subjects with a poor health status seems a more effective approach. This is supported by some other recent reports on this matter. However, the evidence in this respect has some limitations, among other things because the numbers of subjects with poor health included in our study were relatively small. A new experiment would therefore be needed to provide supporting evidence for this population.

In addition to the study on the usefulness of preventive home visits to the elderly, this dissertation reports on two 'by-products' of the main study. Firstly, the health status of the subjects, and the changes in that status, were to a large extent recorded by means of postal questionnaires. Chapter 6 discusses the feasibility of this method among aged persons, and it compares data obtained from postal questionnaires with those gathered by means of personal interviews.

Secondly, self-rated health turned out to be a key variable in our experiment on the home visits: it yielded prognostic information on the subjects for whom the visits seemed to have been useful. Previous studies had already suggested that this simple and easily obtainable measure of health can predict relevant health outcomes, such as mortality. Chapter 7 reports on the prediction of mortality on the basis of scores on self-rated health, as well as some other measures of health. For this additional study we used mainly information on those subjects who had participated in the baseline measurement for the main study, but were subsequently not selected for the experiment.