



Effects of a training program for home health care workers on the provision of preventive activities and on the health-related behavior of their clients: A quasi-experimental study



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ABSTRACT

Background: Because home health care workers repeatedly visit the same older adults, they are in an excellent position to improve the health-related behavior of older adults, their clients, by providing preventive activities.

Objectives: The objective of this study was to determine the short- and medium term effects of an intervention to support workers in providing preventive activities for older adults. To do this, the number of activities undertaken by workers and the health-related behavior of their clients were assessed.

Design: A quasi-experimental study was performed with a pre-post design and inclusion of one control group.

Settings: The study took place in a deprived, semi-rural area in The Netherlands (2011–2013). Data in three districts served by one home health care organization were gathered.

Participants: The participants were home health care workers (registered nurses and nurse aides) and home health care clients aged 55 and over (community-dwelling, dependent older adults receiving home health care). 205 home health care workers participated in the study, 97 of them in the first effect measurement; and 83 of them in the second effect measurement. A total of 304 home health care clients participated, 214 of them in the first effect measurement; and 186 of them in the second effect measurement.

Methods: Differences in change were determined in health-related behavior between groups of older adults as a result of training home health care workers in preventive activities

Results: In the control group of home health care professionals a significant increase was found regarding the provision of preventive activities for the domain 'weight' (partial eta squared: 0.05 and 0.08 at first and second effect measurements, respectively). We found preventive activities performed by home health care professionals to have no significant effects on older adult-reported health-related behavior, but observed in the intervention group a non-significant trend in improvement of physical activity of, respectively, 85 and 207 min for the first and second effect-measurements.

Conclusion: This training program had hardly any effect on preventive activities performed by home health care workers and on the health-related behavior of older adults. Offering health promotion via home health care workers may be promising but its delivery should be enhanced.

What is already known about the topic?

- Sufficient intake of fruit and vegetables reduces the risk for several diseases
- Interventions regarding general prevention in the home health care context seem promising to reach an improved intake of fruit and vegetables and increased physical activity.

What this paper adds

- A positive pattern was found for almost all outcomes (increased physical activity and healthy eating and decreased BMI) for the older adults in the intervention group.
- The home health care setting seems promising to promote the health of independent living older adults.

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1. Introduction

The health of older adults is precarious; e.g. almost 75% of American individuals aged 65 years and older have multiple chronic conditions (Anderson, 2010), as is also the case with 37% of Dutch people aged 55 years and older (Oostrom, 2012). Adverse health-related behavior and an unfavorable Body Mass Index contribute in a major way to these diseases. According to the WHO (2003, 2009), roughly 1.7 million deaths worldwide are due to low fruit and vegetable consumption, and 3.2 million due to insufficient physical activity. A sufficient intake of fruit and vegetables reduces the risk of cardiovascular diseases and various cancers (Bazzano et al., 2003; Riboli and Norat, 2003), and sufficient physical activity decreases risks of mortality (WHO, 2010). These risks seem to be mediated partially by a higher Body Mass Index, which is a factor in coronary heart disease, stroke, type 2 diabetes mellitus and several cancers (World Cancer Research Fund, 2009; WHO, 2002 WHO, 2002). Improving intake of fruit and vegetables and increasing physical activity are thus promising routes to improve the health of older adults.

Interventions regarding general prevention in the home health care context seem a promising means toward improved intake of fruit and vegetables and increased physical activity (Hecke et al., 2010; Lightbody et al., 2002), for several reasons. First, home health care workers see older adults (their clients) frequently and can observe them in their own environment. Second, these workers are usually highly trusted by the older adult. Third, the workers have preventive duties; they detect client problems like pressure ulcers, malnutrition, obesity, falling, problems with use of medication, depression and incontinence, and perform general tasks like assisting clients with personal hygiene, etc. However, there is as yet little evidence on the efficacy of preventive interventions aimed at improving the health-related behavior of older adults.

We therefore developed a training program to support home health care workers in providing preventive activities to improve physical activity and fruit and vegetable intake among older adults. The specific aim of this study was to determine the effectiveness of this training program. To do so, the short- and medium-term effects were measured of preventive activities on the health-related behavior of older adults.

2. Methods

2.1. Study design and participants

This study was quasi-experimental, with a pre-post design and the inclusion of one control group, performed in a deprived, semi-rural area in The Netherlands (2011–2013). We chose for a quasi-experimental study and not a full RCT for two reasons. First, study groups had to work in different regions to prevent contamination (such as workers in the intervention group providing information on the intervention to workers in the control group). Second, we adhered to pre-existing training sequences and the need to combine half of the intervention condition with another, community based, intervention. This determined the allocation of the regions into two districts: one in which the intervention was delivered, and one in which older adults received care as usual.

2.1.1. Home health care workers

The home health care workers were registered nurses and nursing aides working in a semi-rural area of the Netherlands. All employees involved in the intervention were asked to participate in training sessions regarded by the organization as compulsory, as part of their continuing education. The employees in the intervention and control situations gave informed consent for their participation in the research.

2.1.2. Home health care clients

These were community-dwelling, dependent older adults receiving

home health care. Clients aged < 55 or suffering from mental diseases like, dementia, or receiving palliative care, were excluded by the team leader. All other clients were eligible for participation. The Medical Ethical Committee (MEC) of the University Medical Center Groningen evaluated our study protocol and considered that their approval was not required. The MEC considered the training for the health care workers and the received preventive activities by the clients to be not stressful for participants.

2.2. Procedure and measures

We collected data on both home health care workers and clients at three moments: a baseline measurement from October to November 2011, a first effect measurement from April to August 2012, and a second effect measurement from October 2012 to January 2013.

2.2.1. Home health care workers

We recruited home health care workers by selecting all health care workers working in the allocated districts and inviting them to participate in the study by letter (intervention group) or during work meetings (control group). They gave their consent to participate in the study by filling in the baseline questionnaire. The questionnaires were distributed just before the training (only for the intervention group), during work meetings or, in case of absence, via work mailboxes. Telephonic reminders were conducted after two to four weeks. Among home health care workers, we measured a wide range of *preventive activities* regarding physical activity and healthy eating which the care worker can perform during a client visit. To assess the provision of these preventive activities we developed the preventive activities scale, based on the commonly used framework 5A's (AHRQ, 2012) and previous studies measuring preventive activities (Blanquet et al., 2011; Burns et al., 2000), i.e. with a strong face-validity. The preventive activities concerned three domains: 'physical activity', 'healthy eating' and 'weight'. These domains were operationalized in a preventive activities scale consisting of a total of 18 items ('physical activity', 'healthy eating' and 'weight' include five, ten and three items, respectively). An example of an item of this scale is the following: I ask the client about his/her intake of fruit and vegetables. Each item could be scored on a three-point scale ("never" (0); "occasionally" (1); "often" (2)). The variable "total preventive activities" was calculated by summing up all scores, thus reaching a total score with a possible range of 0 to 36; a higher score indicates greater frequency of prevention provided by the home health care worker. This scale had a very good reliability (Cronbach $\alpha = 0.93$). We further assessed the co-intervention (additional community-based intervention in one intervention district, see Luten et al. (2016)), age, educational level (regarding the highest diploma obtained, categorized as low: no education to very low professional education; medium: lower high school education to lower professional education; high: higher professional education to academic education), BMI, working years and working hours.

2.2.2. Home health care clients

We recruited clients by sending a letter to the clients in both districts to invite them to participate in the study. They gave their consent to participate in the study by filling in the baseline questionnaire. Telephonic reminders were conducted after two to four weeks. At each occasion clients received a voucher for filling out the questionnaires. The *physical activity* level was measured using the Short QuesTionnaire to ASsess Health-enhancing physical activity (SQUASH), developed by the Dutch National Institute of Public Health and the Environment. The SQUASH assesses physical activity under four headings: commuting activities, leisure time activities, household activities and activity at work and school; it has been shown to be reliable and valid for use in adult populations (Wendel-Vos et al., 2003). An example of a walking item is the following: 'Please indicate how many days per week you performed the following activities, how much time on average you were

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