Received: 30 May 2022 | Accepted: 14 January 2023

DOI: 10.1111/scs.13150

Scandinavian Journal of Caring Sciences

ORIGINAL ARTICLE

The health-related quality of life of older people through preventive home visits: A quantitative longitudinal study

Britta Blotenberg RN, MSc, PhD Student[1,2] | **Stefanie Seeling RN, PhD, Professor**[2] | **Andreas Büscher RN, PhD, Professor**[1,3]

[1]Department of Nursing Science, Faculty of Health, Witten/Herdecke University, Witten, Germany

[2]Faculty of Management, Culture and Technology, Osnabrück University of Applied Sciences, Lingen, Germany

[3]Faculty of Business Administration and Social Sciences, Osnabrück University of Applied Sciences, Osnabrück, Germany

Correspondence
Britta Blotenberg, Department of Nursing Science, Witten/Herdecke University, Witten, Germany.
Email: britta.blotenberg@uni-wh.de

Funding information
Bundesministerium für Bildung und Forschung, Grant/Award Number: 16SV7453

Abstract

Aims and Objectives: Preventive home visits are a low-threshold counselling and support approach. They have been reported to achieve heterogeneous effects. However, preventive home visits have the potential to reduce the risk of becoming dependent on long-term care. The aim of this study is to investigate the effect of preventive home visits as a nursing intervention on health-related quality of life of older people in a longitudinal survey and to develop recommendations for which target groups preventive home visits have the highest benefit. The sample consisted of 75 people, aged between 65 and 85, who were able to understand and speak German, had not yet been eligible for benefits from the long-term care insurance and lived in the municipality under study.

Methodological Design and Justification: A quantitative longitudinal study in order to investigate the effects of preventive home visits.

Ethical Issues and Approval: There were no ethical concerns. Accordingly, ethical approval was granted.

Research Methods, Results and Conclusions: The health-related quality of life was recorded four times between 01/2017 and 08/2020 with the Short-Form-Health-Survey-12 and analysed using descriptive statistics. Results reveal that the physical health status cannot be easily influenced over a short period of time. The main effect, however, is that preventive home visits have a significant positive effect on the mental health status. The main topics during the home visits were mobility, nutrition and social participation. Increased knowledge and motivation for preventive behaviour extended the autonomy of older people. Accordingly, preventive home visits can support a self-determined life in a familiar environment. The results of the present study show that preventive home visits as a nursing intervention in rural areas are successful. In Germany, preventive home visits have not yet been implemented on a regular basis. In order to do so, a general definition of the concept is needed. Preventive home visits should be officially included in the regular health care services in Germany.

KEYWORDS

community care, elderly, health promotion, health service, preventive home visit, quantitative research

INTRODUCTION

Preventive home visits (PHVs) are regular part of health care delivery in many countries, particularly in Scandinavia. They are considered to be a low-threshold counselling and support approach. In Denmark, PHVs have been part of regular health care since 1998 and municipalities are obliged to offer them. Senior citizens aged 75 and over have the legal right to get two PHVs per year [1, 2]. Because of older people being increasingly active today, the minimum age limit is now 80 with an annual check-up. In addition, anybody between 65 and 79 who is vulnerable or socially exposed, can get a PHV whenever necessary [3]. The main objectives of the Danish law are to increase older people's trust in the social system and to identify the need for help at an early stage [1]. In Sweden, on the other hand, only in Stockholm PHVs were established as a mandatory offer [4].

In Germany, due to demographic change and lack of health care personnel new solutions in rural areas are necessary [5]. However, PHVs have not yet been implemented on a regular basis despite an existing legal basis. The aim is to strengthen health promotion and prevention and thus to prevent diseases before they occur [6]. PHVs can be a means to enable citizens to realise their preferred wish to stay in their homes as long as possible by maintaining health and independence in old age [7, 8]. For this, PHVs appear as a promising evidence-based measure thanks to its target group and setting-specific orientation [9, 10]. Particularly at the level of health or health indicators, there is a positive correlation between health status and the home visiting programme. PHVs aim at the early detection of risk factors for diseases and functional losses in order to identify undiscovered physical, psychological and social problems [11].

There is, however, no consistent concept related to prerequisites of those conducting home visits, inclusion and exclusion criteria, participant recruitment, intervention duration and intensity, timing of data collection, use of multidimensional assessments, timespan follow-up and number of follow-up visits [12]. In addition, age and gender of the participants can influence the effects of PHVs [13]. Therefore, different interventions lead to various effects [12]. Younger participants, ≤74 years old, show a higher tendency to benefit from the intervention compared with older participants with regard to all outcomes except hospitalisation and nursing home admission [14]. According to experts, PHVs require a nursing qualification as a basic qualification [15].

Nevertheless, no advantage of a particular type or intensity of intervention has been found so far [14] and it is still unclear what the determining aspects for the effectiveness of the programme are [16]. However, PHVs can improve health and thus reduce health system use and costs [13, 17], for example, by reducing the number of nursing home admissions [17] or the risk of hospital admissions [13]. In addition, PHVs can significantly lower the mortality rate [18] and reduce the number of fall events [19]. But only when a geriatric assessment or a fall prevention assessment is used, a significant reduction in falls can be achieved [14]. Those who receive PHVs have an improved functional status, mobility and physical functioning compared with those who do not receive one [20]. Through PHVs, older people also gain better knowledge of their health. Ultimately, current research findings indicate that PHVs have a positive effect on older people's health [21] and their quality of life [13, 18, 21].

To investigate the health-related quality of life (HRQOL) through PHVs the following study was initiated, during which PHVs were conducted, tested and evaluated with a focus on older people living in a rural area in Germany. The study aimed at answering the question what the effects of PHVs are on HRQOL of older people in the respective area. As this study coincided with the pandemic of coronavirus disease 2019 (COVID-19 pandemic), at the final time of data collection, it also examined the impact of the pandemic on HRQOL of the participants. Finally, the aim was to develop recommendations for which target groups PHVs have the highest benefit.

METHODS

Preventive home visits represent a complex intervention with their effects influenced by a variety of factors. This makes it difficult to identify effects using a randomised controlled trial (RCT). However, according to Clark [22], the effectiveness of PHVs cannot be proved easily, and RCTs are not able to evaluate it. Accordingly, in order to investigate the effects of PHVs, the present study analysed the HRQOL of those who received PHVs by using the Short-Form-Health-Survey-12 (SF-12) as one of the most frequently used generic screening instruments worldwide within a longitudinal study in the frame of a quantitative design. The study integrated the recommendations and instruments available from the literature.

Region under study and target group

The joint municipality of Emlichheim in the north-western part of Lower Saxony in Germany is a rural area with a population density of nearly 78 inhabitants per square kilometre. It comprises four municipalities. In June 2018, Emlichheim had 14,356 inhabitants and 2540 [23] of them met the inclusion criteria of age and therefore received

a personal letter with the invitation to participate in the study. The including criteria were: (1) age group between 65 and 85, (2) ability to understand and speak German, (3) current non-eligibility for benefits from the long-term care insurance and (4) residing in the municipality under study. Potential participants incapable of giving consent on their own were excluded from the study. 75 persons out of a sample of 273 persons were included. Due to resource constraints, not all interested persons could be involved.

PHVs intervention

The concept was specifically developed for the target group and is based on Gebert et al. [8]. In this approach, PHVs are characterised by low-threshold access as an outreach individual case counselling of older people who are not eligible for benefits from the long-term care insurance. The intervention consisted of consultations at four times (T1–T4) by a professional nurse with a Bachelor Degree, Bachelor of Science (B.Sc.) within 10 months. The nurse was able to speak the regional dialect, an important characteristic of the target group, and was employed by the Multigeneration House in Emlichheim, an institution independent from the health care system. An overview of the study design is available in Figure 1.

T1: During the first PHV, a geriatric assessment was performed to assess individual problems and risk factors of the person seeking advice, the Standardised Assessment of Elderly People in Primary Care in Europe with the module mobility (STEP-m). Within the study by Gebert et al. [8] the Standardised Assessment of Elderly People in Primary Care in Europe (STEP) was operationalised to the target group and the module mobility (m) has been supplemented. The identification of the needs and resources of the persons concerned by using the STEP-m within the first home visit serves as the basis for individual counselling and referral to support services. After the visit, the challenges recorded were discussed in a case conference [8]. This multi-perspective case discussion was organised by the nurse with persons from different professional groups such as other nursing staff, a general practitioner, administrative staff with many years of expertise in regional services up to experienced staff from the (social) pedagogical field. The case was presented and preventive measures were derived on the basis of the information from the STEP-m Assessment. Accordingly, a personal prevention plan was developed by the nurse using the results from the case conference. The plan summarises the advice that was individually created and listed for health promotion or maintenance.

T2: The second PHV was based on the first consultation session. The nurse handed out the prevention plan according to the priorities of the needs specifically chosen by the person affected. During the counselling process, the counselling contents were supplemented with flyers and contact details of contact persons from the regional health care network. This document enabled the participants to read up the information at any time and/or to seek professional help within this regional health care network. In addition, references to Internet sources were passed on in order to further point out supra-regional offers, especially when regional offers were absent.

T3–T4: The third and fourth PHV focussed on continuing support in fulfilment of the recommendations and evaluation, e.g. an adaption to a changed life situation. Finally, during the last PHV, the health situation was again determined with the help of the STEP-m Assessment, analysing and documenting the differences. In case of no negatively influencing characteristics concerning the HRQOL

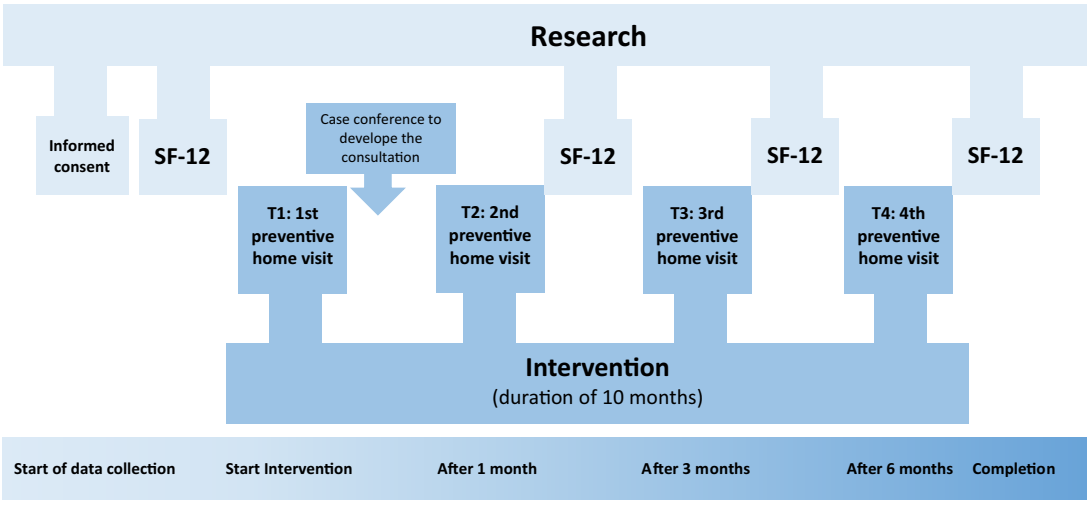

FIGURE 1 The study design.

were identified on which the consultation had not yet occurred the counselling was ended. Otherwise, counselling continued.

Due to the COVID-19 pandemic, the data collection process needed to be interrupted between March and May 2020, because the study participants belonged to the high-risk group for COVID-19-infection. The pandemic influenced the last PHV (T4) of 21 study participants, which represented almost one-third of the total sample. However, there was only one drop-out during this period, as there had been no change for him since the previous visit.

Data collection

The German version (2.0) of the SF-12, was used to record HRQOL. The SF-12 was developed by Ware et al. [24] and is one of the most frequently used generic screening instruments worldwide to assess HRQOL. The questionnaire does not only focus on one type of disease and is based on a multidimensional definition of HRQOL. It measures the physical and psychological aspects, twelve questions in total. Therefore, it uses eight domains: physical functioning, role limitations due to physical health problems and emotional problems, bodily pain, general health, vitality, social functioning and mental health. The answer options are variable, from dichotomous answer options (yes/no) to a scale level ranges up to six answers. On average, the completion needs less than three minutes. There was an accumulation of missing data in higher age groups and lower educational strata. Accordingly, checking the completed questionnaires and asking the respondent for clarification in case of unclear or missing information or performing the questionnaire as an interview are suitable measures to increase the number of analysable questionnaires. Furthermore, German studies show satisfactory internal consistencies of the summation scales. The questionnaire can focus on different time periods, one or four weeks. It can be a self-assessment or an external assessment and can be carried out in writing or as an interview. It is recommended not to combine the different survey types, as they might lead to different values [25]. The SF-12 was used in the present study in text form and self-reporting, focussing on the past four weeks. In order not to influence the answers of the study participants, they were asked to complete the questionnaire without help. In addition, the questionnaire was checked for completeness afterwards. The permission to use and duplicate the German SF-12 for the present study was given by and bought from Hogrefe Publishing GmbH to whom the rights belong in Germany.

The data was collected between 01/2017 and 08/2020 in a longitudinal survey, at four different times combined with the PHVs. The SF-12 was filled in before PHVs started. The second, third and fourth completion took place after the visits T2–T4.

Data analysis

The calculation was carried out using the given evaluation syntax with the factor coefficients of the German norm sample 1994 in order to achieve comparability for Germany. The mean values (MVs) for comparison are available with regard to gender, age groups and acute or chronical diseases [25]. For the present study, the age group >70 years old was used, because the study participants were between 65 and 85 years old. Men and women without a specific disease could participate in the study and the largest number of study participants belong to this age group.

The data analysis was carried out by descriptive statistics using SPSS®-Software (version 26). One-way analysis of variance (ANOVA) was carried out for correlation analysis to identify possible significances [26]. This approach is used to test the null hypothesis: the means between HRQOL and the characteristics of the participants collected with the STEP-m Assessment are all equal. Finally, in order to give recommendations for which target groups PHVs have the highest benefit, individual evaluations with exceptional effects on HRQOL were carried out to identify specific details with regard to the concept.

RESULTS

The effects of the characteristics and the effects of the PHVs on HRQOL were analysed, on the one hand, by the effect on the physical health status (phs) and, on the other hand, by the mental health status (mhs). In addition, HRQOL influenced by COVID-19 was included.

All study participants were diagnosed with chronical illnesses like diabetes mellitus, heart/cancer diseases, osteoarthritis. While taking part in the study, four participants became care-dependent. Even though they required professional advice from the health system, these participants wished to continue with PHVs and perceived them as a valuable addition to their care advice. Altogether, the SF-12 from 62 participants could be analysed (Figure 2).

Effects of the characteristics on HRQOL

The characteristics of the 62 participants were collected with the STEP-m Assessment (Table 1). A gender-related significant difference between the MVs did not occur. This

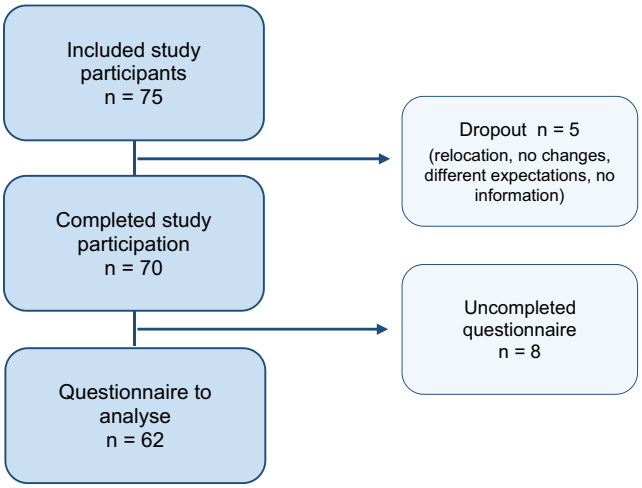

FIGURE 2 Flow chart of the participants.

is the reason why no sub-group analysis was carried out based on gender. However, there was a significant age-related difference ($p = 0.009$) between the MVs, which was recorded at the beginning of their participation. The phs (MV 35.27) of the participants between those aged 80 to 85 decreased at the final time of data collection (65–69: 41.71, 70–74: 48.93, 75–79: 42.68), but there was no difference with regard to the mhs. The other characteristics showed no significant difference.

Effects of PHVs on HRQOL

The results of this study show that PHVs have a positive effect on the mhs. Altogether, the MV of the phs of the study participants is at each of the four times of data collection higher than that of the German norm sample (39.84). In contrast, the MV of the mhs is at each time of data collection lower than that of the German norm sample (52.47). The MV of the phs first increases and then decreases. The MV of the mhs increases steadily and only decreases slightly after an interval of six months. Since data were collected in the longitudinal survey, it is possible to illustrate the course of the four different measuring times of the MVs (Figure 3).

However, three of the 62 participants became care-dependent while participating in the study and answered the SF-12: one before the third PHV and the other two before the fourth PHV. Looking at details, there was a marginal difference between the MV of the total and those excluding the care-dependent ones. Finally, the MVs between the phs of the participants with and without a need for long-term care at the final time of data collection showed a significant difference ($p = 0.015$); the care-dependent participants showed a lower value (42.13) than the others (49.16).

TABLE 1 Characteristics of the participants ($n = 62$).

Characteristics from STEP-m	Participants
Gender	
Female	40
Male	22
Age (years)	
65–69	17
70–74	20
75–79	20
80–85	5
Living situation	
Living alone	19
With partner	38
With children	4
Other (with mother and brother)	1
Level of education	
Elementary school/school leaving certificate	32
Middle school/secondary school leaving certificate	17
Secondary school/high school diploma/technical diploma	3
College/university	9
Other (diploma from the Netherlands)	1
Previous job	
Worker	33
Employee (office)	12
Manager/engineer	5
Self-employed	6
Other	6

Abbreviation: STEP-m, Standardised Assessment of Elderly People in Primary Care in Europe with the module mobility.

Exceptional effects on HRQOL

To answer the question for which target groups PHVs have the highest benefit, individual evaluations were carried out to identify specific details with regard to the concept and to make recommendations. For this purpose, Table 2 presents six cases with exceptional effects.

The MV of the phs at the final time of data collection is not severely affected by COVID-19 (44.57 to 42.40). But there is a significant difference ($p = 0.003$) between the MVs of the mhs of the participants before and after the beginning of the pandemic (51.61 to 43.35). The MV of the 41 participants not influenced by COVID-19 were each time higher than during the survey. The participants who were influenced by the pandemic showed a lower MV (Figure 4).

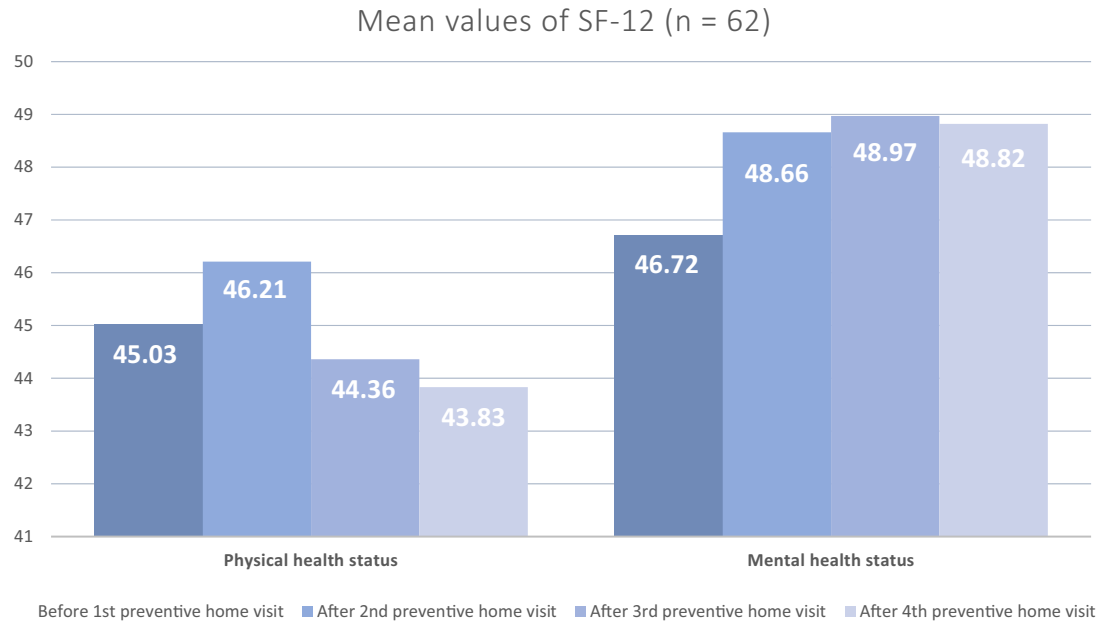

FIGURE 3 Physical and mental health status of the participants.

Conclusion of the special cases (cases 1–6)

The results show that new activities naturally led to a better phs. Sometimes, as in Case 1, people need psychological or even physical support to become active. People like in Case 2, who already have serious illnesses strongly influencing their phs in a negative way, can often just be supported without a realistic hope for health improvement or even restauration. But even if the phs deteriorates, the mhs can improve continuously from 57.73 to 67.17. This indicates that PHVs, and thus better health care, can go hand in hand with a higher sense of well-being.

The mhs results indicate that, among other things, the support of one's own family and self-confidence are of high importance in order to reach well-being. To achieve this goal, a close relationship of trust between the person seeking advice and the counsellor is advantageous. Here, the language can also ensure a positive relationship, just as it can for Case 3. However, physical discomfort such as permanent pain, as in Case 4, cannot be influenced by counselling but requires much more. Nevertheless, support through independent counselling for necessary surgery appointments can trigger a better sense of well-being in the future.

The particular external influence of the last two cases must be given special consideration. On the one hand, the best development HRQOL during the time was achieved, Case 5. Obviously, new contacts allow a higher sense of well-being. Most certainly, the new girlfriend accelerates his well-being, as his mhs was influenced exceedingly positive. On the other hand, the greatest negative external influence occurred due to COVID-19. The results show that social isolation has an enormous influence on the mhs of older people like Case 6. His mhs rose continuously. In turn, the loss of social contacts immediately influenced his well-being in a negative way.

DISCUSSION

Although there is still controversy in the scientific literature, systematic reviews suggest that home-based services can reduce health system utilisation and costs [13]. The Scandinavian countries offer PHVs successfully and achieve valuable results for their populations. This should be an inspiration and role model for other countries.

The results of the present study are an addition to previous knowledge about PHVs described above and show that they ultimately achieve significant positive effects on HRQOL: The MV of the phs of the participants between the age of 80 and 85 decreased significantly at the final time of data collection. Moreover, there is a significant difference between the MV of the mhs of the participants before and after the beginning of the pandemic as well as the MV of the phs of the participants with and without the need of long-term care at the final time of data collection. Altogether, the MV of the phs first increases and then decreases, but the MV of the mhs increases steadily and only decreases slightly after an interval of six months. Finally, the target groups for which PHVs have the highest benefit, in particular, are older people with the characteristics of (impending) social isolation, lack of drive, self-doubt, insecurity, lack of information and chronic diseases.

TABLE 2 Exceptional effects on health-related quality of life.

Case	Characteristics from STEP-m	Individual information	Counselling topics	Effects
Case 1 Highest effect on the phs	Man, 73 years old, widower, living alone in a house in the centre, immigrated from the Netherlands (11 years ago), worked for a long time in Germany	Does not get up before 11 o'clock, travels a lot, many friends all over Europe, but nearly none nearby; health situation: heart problems, which worsened due to the stress of his wife's cancer, 4 stents; developed diabetes type 2 during participation	Promotion of fitness/mobility: signed up for the gym and goes there regularly; loneliness: open minded for getting in touch with new people, willingness to pass on his good manual skills to other seniors; mentally stressful situation: bad relationship with his stepchildren and the situation with the house; further implemented measures: creation of an emergency folder	Best development from 30.20 to 53.77
Case 2 Worst effect on the phs	Woman, 78 years old, living alone in her own house in the centre, college/university degree, worked as a primary school teacher	Several children, works voluntarily for the municipality; health situation: hypertension, arthritis in knee and foot	Promotion of mobility/fall prevention: started movement exercises, receive support because of the risk of falling, uses a walking stick for safety when walking; physical restriction: nutrition adjustment and wearing a splint to reduce the symptoms of the arthritis	Worst development from 52.57 to 32.20
Case 3 Highest effect on the mhs	Woman, 72 years old, living with her husband in their own house, elementary school education, worked as a cook/kitchen assistant, seamstress, was predominantly a housewife	3 children: 1 daughter lives next door; health situation: hypertension, elevated cholesterol levels, mild incontinence, damaged vessels, arthritis in the fingers, corneal detachment on both sides with operations; special characteristic: was already very well supplied; counselling was conducted in the regional dialect	Main topic: promoting self-confidence; fall prevention: especially with regard to putting on compression tights; physical restriction: drinks nettle tea regularly, since then no more arthritis pain in her fingers, adapted nutrition for better digestion; the burden of the household: recognising one's own limits; adapting living space: the bathroom was completely renovated with the help of the family, washing machine and dryer placed on a pedestal	Best development from 23.67 to 57.73
Case 4 Worst effect on the mhs	Woman, 75 years old, living with her husband in their own house in the centre, middle school education, was a housewife	5 children: 3 living in Emlichheim, 1 daughter lives next door, got her first child at the age of 17; health situation: uterus removed, remedy lowering, cataract, splay feet, symptom: constant pain	Promote mobility and strength: courses, everyday exercises; social participation: facilitate the use of mobile phones, networking (like seniors' afternoon, painting 50+); physical restriction: eye surgery cause of cataract (appointment postponed by COVID-19 pandemic), gynaecological surgery, because the lowering is increasing again, relieving incontinence; living space: support in the garden/household by buying a vacuum and floor mopping robot, purchase of an armchair with stand-up aid; information transfer: vaccinations	Worst development from 55.38 to 38.07

(Continues)

TABLE 2 (Continued)

Case	Characteristics from STEP-m	Individual information	Counselling topics	Effects
Case 5 Highest effect on the phs and mhs	Man, 77 years old, widower for 5 years, living alone in his own house in the centre, elementary school education, worked on an oil rig and as a driver	2 children: both living in Emlichheim, girlfriend from the neighbouring community for 1 year, very happy together with her; health situation: prostatic hyperplasia, hypertension, dry alcoholic; symptom: heavy and tired legs	Promote self-confidence: self-help group for alcoholics (girlfriend goes there with him together, gives support), discussion group widows/widowers, social integration (e.g. through the new girlfriend); information transfer/further implemented measures: precautions like vaccination, advance directives, power of attorney, emergency box, computer contact point, appointment with the general practitioner due to his symptoms (blood sample, referral to neurologist)	Greatest development from 61.28 to 53.95 of the phs and 33.99 to 61.06 of the mhs
Case 6 Worst effect on the mhs by COVID-19	Woman, 68 years old, living with her husband, middle school education, worked in the textile industry, as a household helper and they ran their own farm	4 children: 1 daughter lives next door with her family, 1 son lives nearby; health situation: uterus removed, total hip arthroplasty, heart attack and stents	Information transfer/further implemented measures: recommendations like fall prevention, arrangement of doctor's appointments in the sense of preventive health care, advance directives and a power of attorney were in progress, use of mobile phones and senior companionship	Worst development from 55.67 to 32.86 (almost the original value 32.50)

Abbreviation: STEP-m, Standardised Assessment of Elderly People in Primary Care in Europe with the module mobility.

Effects on the mhs

The main result of this study is that PHVs directly influence the mhs and, in fact, improve it: (1) Case 1 who lives alone, and (2) the influence of the pandemic on Case 6, which resembles social isolation. Both cases confirm that this target group have the highest benefit of PHVs. This outreach personal advice increases the awareness for health promotion and sensitise how to implement small changes in their lives. The highest effect on the mhs of Case 3 and 5 shows that to promote self-confidence is a theme of high relevance. The results of the present study confirm that increased knowledge of health promotion and maintenance also lead to more self-confidence. Motivation for preventive as well as health-promoting behaviour is elementary to extend the autonomy of older people.

The Multigeneration House already had good offers for the target group like social gatherings in the afternoon, memory training or ironing services, which offered a good approach for social participation and maybe improve the mhs if necessary. However, the awareness of existing (regional) services still needs to grow so their use increases and social participation is enhanced.

Effects on the phs

In recent years, the phs of human beings has improved, because medical care has improved [27]. This fact could explain that from the very beginning, the MV of the phs is better than the German norm sample. That the MV of the participants between the age of 80 and 85 decreased at the final time of data collection is due to the fact that there is a significant increase in becoming eligible for benefits from the long-term care insurance at this age [28]. In addition, participants indicated on the SF-12 that the final four weeks could have been very different. One day they felt very bad but on the following day much better, so this was difficult to answer and had no time specification. Even though the results show no demonstrable positive effect of PHVs on the phs, additional influencing factors, such as acute illnesses or life changes, must be considered in the future. The present study could only analyse these to a limited extent.

The fact that participants became care-dependent while they participated in the study does not necessarily indicate a lack of effectiveness. If the use of care services with PHVs increases, this may reflect a finding that an existing need is being met [11]. Physical problems, such as having urinary incontinence (women only), having pain (Cases 2 and 4), impaired endurance and using a mobility device (Case 2), make social participation more difficult

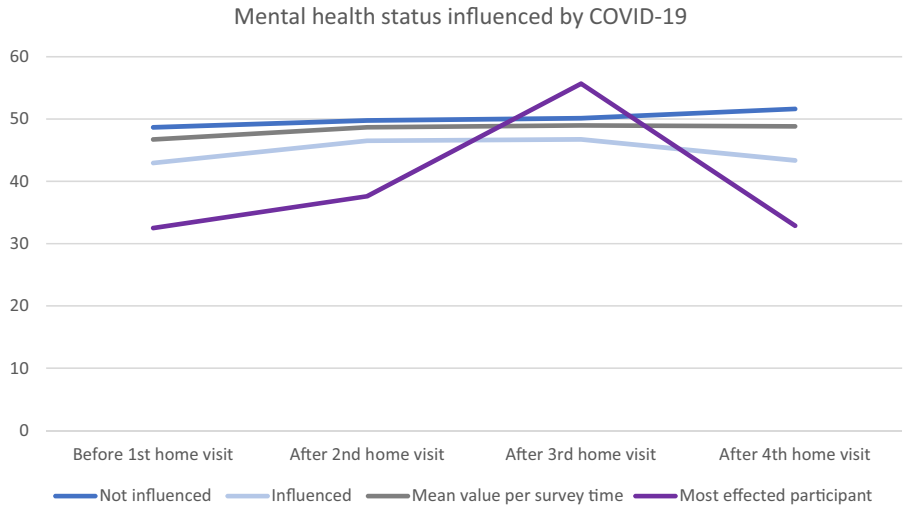

FIGURE 4 Influence of the COVID-19 pandemic.

[29]. These problems were also experienced by those study participants who became care-dependent.

Moreover, compared with the mhs, the phs in particular is not as easy to influence over such a short period of time and through exclusive counselling. Sharing the prevention plan proved useful, as the recommendations could be referred to at any time. Nevertheless, future research projects should also consider the importance of physical challenges.

Long-term effects on HRQOL

PHVs reduce negative effects on HRQOL if the intervention is undertaken with a comprehensive geriatric assessment. However, this effect diminishes after termination of PHVs [30] and thus confirms the outcomes of the present study, namely that within the period of six months the previously achieved effects decrease. This is why the nursing intervention should be carried out continuously. As a result, PHVs could reduce inequalities between older people in terms of social participation on the individual as well as on the societal level.

Benefits of the Bachelor nurse

There is some likelihood that health promotion carried out by nurses will result in cost savings [17]. The results show that the competencies of the nurse were used specifically and are needed for the implementation of PHVs. The nurse provided advice on a wide range of topics and applied targeted measures and activities to help maintain health and reduce or delay the risk of disease. The most important topics of the consultations were mobility, nutrition and social participation. Other topics were social isolation/loneliness, emotional problems, fall prevention, adaptation of living space, body weight, dealing with chronic diseases, creating advance directives and a power of attorney. The topics that were discussed during the PHVs included intimate topics and physical examinations. Thus, the nurse used her expertise, correctly assessed the answers given to the STEP-m Assessment and advised accordingly. For example, the focus of counselling was on organising everyday life and not on accompanying medical therapy. Suitable offers, such as gymnastic swimming courses, nutritional counselling, mediation of a professional home consultant for fall prevention and some services of the Multigeneration House are recommendable for all counselling sessions.

Future implementation of PHVs in rural areas

Complex interventions have to be described in detail to make a replication possible [31]. The findings of this study add to the current knowledge about the effects of PHVs on HRQOL, the influence of the pandemic as well as for which target groups PHVs have the highest benefit.

The location of PHVs within the municipal structures proved beneficial, as there were short information paths enabling new networks based on the needs of older people. Moreover, informal networks function very well in rural areas and have proven to be useful through their promotion of the awareness of PHVs. The institution independent of the regional health care system also proved

to be the appropriate provider as the offers were also very well accepted. The employees of the non-profit institution located in the centre of Emlichheim enjoy a high level of trust among the population. This was one important factor to attract people from different strata of society to participate. The project of Gebert et al. [8] showed that people felt controlled by their health insurers.

Furthermore, the linking of civic engagement is recommended [8]. In the present study for example, Case 1 stated his willingness to pass on his good technical skills, while others indicated an interest in participating in or even establishing a self-help group or to help with the ironing service of the Multigeneration House. In short, the offers provided took the needs of the target group into account. In rural areas, very often transport is needed to benefit from such offers. Therefore, the service was arranged by the Multigeneration House for those participants living far away.

Due to the shortage of general practitioners in rural areas, doctors' surgeries and pharmacies among other shortcomings, are difficult to reach at an advanced age. This can lead to health services no longer being used and consequently to a deterioration of the health status [32]. It is necessary to perceive and promote opportunities to establish prevention and health promotion at the municipal level as services of general interest.

Of course, there have to be local-regional adaptations of the concept [33]. Like the recruitment of the nurse has already considered a regional base. She spoke the regional dialect and could therefore create trust (Case 3). All recommendations given by previous studies can be confirmed by the present results, but above all a clear definition of the concept of PHVs should be completed.

CONCLUSION

In Germany, various projects in different contexts point towards a persistent social need for and interest in PHVs [34, 35]. It is important not to implement PHVs on a transnational or nationwide basis. It has been pointed out how complex, complicated and difficult such an innovative implementation is, how much time it needs because of learning processes for development and implementation, not to mention to interface work in the social space [33]. Finally, the implementation of PHVs in new areas needs scientific in-depth support. This would achieve a higher acceptance among the target group and would enable the record of further specific details, which are necessary for a nationwide implementation with local-regional adaptations. First of all, there is a lack of a clear concept for PHV in Germany. Last but not least, there is an urgent need for a proper name as well as a general definition of the offer as a statutory service. Only through the interaction of different (innovative) care models, a sufficient health care can be ensured in the future.

AUTHOR CONTRIBUTIONS

BB, SS and AB designed the study, SS provided project management; BB and SS obtained ethics approval; BB collected the quantitative data, analysed the data sets and prepared the full draft of the article; SS and AB provided theoretical expertise and input; all authors contributed to and approved the final version of the manuscript.

ACKNOWLEDGEMENTS

We would like to thank the study participants, the project's cooperation partners for doing such a great job, the research assistants Urszula Hejna (MSc) for data entry support and Markus Esser (BEng) for data evaluation support. Open Access funding enabled and organized by Projekt DEAL.

FUNDING INFORMATION

The data collection took place in the cooperation project "DaHeim—in Emlichheim" (at home—in Emlichheim). The scientific support was part of the Osnabrück University of Applied Sciences, carried out within the project "Dorfgemeinschaft 2.0" (Village Community 2.0; Funding reference number: 16SV7453), funded by the Federal Ministry of Education and Research.

CONFLICT OF INTEREST STATEMENT

None of the authors have any conflicts of interest.

ETHICAL APPROVAL

Ethics approval was obtained from the Ethics Committee of the University of Applied Sciences Osnabrück (ethical vote: HSOS/2017/1-6). According to the Helsinki Declaration, all participants received oral and written information about the purpose of the study. Written informed consent was obtained from the study participants, and it was guaranteed that no outsider had access to person-related data of the participants or would be able to reconstruct these in any way. No allowance was paid to the participation.

ORCID

Britta Blotenberg https://orcid.org/0000-0001-6405-7485
Stefanie Seeling https://orcid.org/0000-0001-7780-9738
Andreas Büscher https://orcid.org/0000-0002-6909-7379

REFERENCES

1. Meinck M. Preventive home visits for older people. In: Günster C, Klose J, Schmacke N, editors. Health care report 2012. Focus: health in old age. Stuttgart: Schattauer; 2012. p. 249–52.

2. Vass M, Avlund K, Hendriksen C, Andersen CK, Keiding N. Preventive home visits to older people in Denmark: methodology of a randomized controlled study. Aging Clin Exp Res. 2002;14(6):509–15.
3. Ministry of Health. *Healthcare in Denmark: an overview*; 2017, Ministry of Health, Denmark.
4. Sherman H, Forsberg C, Karp A, Törnkvist L. The 75-year-old persons' self-reported health conditions: a knowledge base in the field of preventive home visits. J Clin Nurs. 2012;21(21–22):3170–82.
5. Council of Experts on the Assessment of Developments in the Health Care System. *Needs-based care – perspectives for rural regions and selected service areas*. The expert report, short version, Bonn/Berlin; 2014.
6. The German Federal Government. The Federal Government passes the prevention law, September, Google; 2022. https://www.bundesgesundheitsministerium.de/ministerium/meldungen/2015/juni-2015/praeventionsgesetz.html
7. Seeling S, Blotenberg B. Possibilities and limits of the interaction between humans and technology: new key insights into the use of technology by older people in rural areas and their affinity to it. Pflege Gesellschaft. 2017;22(3):248–71.
8. Gebert A, Schmidt C, Weidner F. Preventive home visits to senior citizens: project mobile – the final report. Nursing research ed. Hannover: Schlütersche Verl-Ges; 2008.
9. Hurrelmann K, Richter M, Klotz T, Stock S. Reference work on prevention and health promotion: basics, concepts and implementation strategies. 5th ed. Bern: Hogrefe; 2018.
10. Spicker I, Lang G. Community health promotion with a focus on older people. Knowledge 4 ed. Wien: Gesundheit Österreich GmbH/Geschäftsbereich Fonds Gesundes Österreich; 2011.
11. Riedel M, Fößleitner S, Kraus M. Future financing of long-term care. Wien: Federal Ministry of Labour, Social Affairs, Health and Consumer Protection; 2019.
12. Renz J-C, Meinck M. Wirksamkeit präventiver Hausbesuche bei älteren Menschen: systematische Bewertung der aktuellen Literatur. Z Gerontol Geriatr. 2018;51(8):924–30.
13. Costa-de Lima K, Peixoto-Veras R, Pereira-Caldas C, Motta L-B, Bonfada D, Marques-Dos Santos M, et al. Effectiveness of intervention programs in primary care for the robust elderly. Salud Publica Mex. 2015;57(3):265–74.
14. Beswick AD, Rees K, Dieppe P, Ayis S, Gooberman-Hill R, Horwood J, et al. Complex interventions to improve physical function and maintain independent living in elderly people: a systematic review and meta-analysis. Lancet. 2008;371(9614):725–35.
15. FAH, Federal Association for Health e.V. (ed.) Expert Hearing "Preventive home visits in old Age". Commissioned by the Federal Ministry of Health for Working Group 3 "Healthy Ageing" of the German Forum for Prevention and Health Promotion. Bonn; 2005.
16. Liimatta H, Lampela P, Laitinen-Parkkonen P, Pitkala KH. Effects of preventive home visits on health-related quality-of-life and mortality in home-dwelling older adults. Scand J Prim Health Care. 2019;37(1):90–7.
17. Elkan R, Kendrick D, Dewey M, Hewitt M, Robinson J, Blair M, et al. Effectiveness of home based support for older people: systematic review and meta-analysis. BMJ. 2001;323(7315):719–25.
18. Dapp U, Anders JAM, von Renteln-Kruse W, Minder CE, Meier-Baumgartner HP, Swift CG, et al. A randomized trial of effects of health risk appraisal combined with group sessions or home visits on preventive behaviors in older adults. J Gerontol A Biol Sci Med Sci. 2011;66(5):591–8.
19. Tappenden P, Campbell F, Rawdin A, Wong R, Kalita N. The clinical effectiveness and cost-effectiveness of home-based, nurse-led health promotion for older people: a systematic review. Health Technol Assess. 2012;16(20):1–72.
20. Fagerström L, Wikblad A, Nilsson J. An integrative research review of preventive home visits among older people–is an individual health resource perspective a vision or a reality? Scand J Caring Sci. 2009;23(3):558–68.
21. Christian Democratic Union of Germany. Coalition agreement of CDU, CSU and SPD; 2022, January, Google. https://www.cdu.de/system/tdf/media/dokumente/koalitionsvertrag_2018.pdf?file=1
22. Clark J. Preventive home visits to elderly people. Their effectiveness cannot be judged by randomised controlled trials. BMJ. 2001;323(7315):708.
23. Lower Saxony State Office for Statistics. Population by gender, area, population density of the Emlichheim joint municipality 2020; 2022, January, Google. https://www1.nls.niedersachsen.de/statistik/html/default.asp
24. Ware JE, Snow KK, Kosinski M, Gandek B. SF-36 Health Survey: manual & interpretation guide. Boston, MA: New England Medical Center; 1993.
25. Morfeld M, Kirchberger I, Bullinger M. SF-36 Health Status questionnaire. 2nd ed. Göttingen: Hogrefe; 2011.
26. Müller M. Statistics for nursing: handbook for nursing research and nursing science. 2nd ed. Göttingen: Hogrefe; 2019.
27. Robert Koch-Institute (RKI). Health in Germany – the most important trends: Federal Health Reporting [Jointly provided by RKI and Destatis], RKI, Berlin; 2016.
28. State Office for Statistics Lower Saxony. Care statistics of the Emlichheim joint municipality 2015. State Office for Statistics Lower Saxony, Hannover; 2018.
29. Nivestam A, Westergren A, Petersson P, Haak M. Promote social participation among older persons by identifying physical challenges – an important aspect of preventive home visits. Arch Gerontol Geriatr. 2021;93:104316.
30. Liimatta H. Effectiveness of preventive home visits among community-dwelling older people [Doctoral Dissertation]. Department of General Practice and Primary Health Care, University of Helsinki, Finland; 2019.
31. Craig P, Dieppe P, Macintyre S, Michie S, Nazareth I, Petticrew M. Developing and evaluating complex interventions: the new Medical Research Council guidance. Int J Nurs Stud. 2013;50(5):587–92.
32. Giesel F, Köhler K, Nowossadeck E. Old and immobile in rural areas? Mobility restrictions of older people against the background of increasingly problematic health care in rural regions. Bundesgesundheitsblatt Gesundheitsforschung Gesundheitsschutz. 2013;56(10):1418–24.
33. Schulz-Nieswandt F, Köstler U, Mann K. Evaluation of the model project "Gemeindeschwesterplus" of the state of Rhineland-Palatinate. Cologne University, Köln; 2018.
34. Weidner F, Schulz-Nieswandt F, Brandenburg H, Uzarewicz C, von Renteln-Kruse W, Klein M, et al. Expert opinion:

"structures, service options and organisational forms of prevention, health promotion and rehabilitation for older people and people in need of care in NRW – analysis of the care situation and recommendations for framework conditions". Köln: German Institute for Applied Nursing Research e.V; 2004.

35. Frommelt M, Klie T, Löcherbach P, Mennemann H, Monzer M, Wendt WR. Long-term care counselling, long-term care support points and case management: the task of person- and family-related support in the case of need for long-term care and its realisation in the reform of long-term care insurance. Freiburg: Verlag Forschung – Entwicklung – Lehre; 2008.

How to cite this article: Blotenberg B, Seeling S, Büscher A. The health-related quality of life of older people through preventive home visits: A quantitative longitudinal study. Scand J Caring Sci. 2023;00:1–12. https://doi.org/10.1111/scs.13150