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A national program to support self-management for patients with a chronic condition in primary care: A social return on investment analysis

Esther Talboom-Kamp [a,b,c], Pim Ketelaar [d], Anke Versluis [a,b,c,*]

[a] Saltro, Diagnostics Center for Health Care, 3565 CE Utrecht, the Netherlands
[b] Leiden University Medical Centre, Public Health and Primary Care Department, Leiden, the Netherlands
[c] Leiden University Medical Centre, National eHealth Living Lab (NeLL), Leiden, the Netherlands
[d] VitaValley, Zonneoordlaan 17, 6718 TK Ede, the Netherlands

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ABSTRACT

Background: Chronic care patients can play an important role in the self-management of their disease; however, large-scale implementation of self-management has been challenging. To aid and stimulate self-management in primary care, a Dutch cooperation supported healthcare providers in primary care, through collective healthcare groups, who wanted to implement and execute a self-management program. The program aimed to increase the quality of life (QoL) in people with a chronic condition and simultaneously reduce healthcare costs.
Objective: The aim of this study was to assess the public value of the self-management program that was available for approximately 375.000 chronically ill patients.
Methods: A Social Return on Investment analysis was carried out. The analysis is based on the principles of a cost-benefit analysis, and attributes monetary value to the social return of the self-management program in primary care.
Results: The analysis of the self-management program showed that each euro invested translated to a social return of 4.90 euros per patient per year (measured over 5 years). This result was mainly caused by an increase in QoL and a decrease in healthcare costs. Importantly, the results show that costs and benefits were inequitably distributed across the relevant stakeholders.
Discussion: The results show that self-management support programs in primary care can provide a social return on investment. There is a clear need for lasting support for healthcare providers, both material and non-material, to enable successful implementation of self-management programs in practice.

1. Introduction

The number of people with a chronic condition is high and rising.[1,2] In the Netherlands, 32 percent of the population had a chronic condition in 2014 (such as diabetes, COPD, asthma, cardiovascular disease, or mental disorder).[3] Patients can play an important role in the management of their chronic condition(s).[4] Self-management refers to a person's capacity to cope with the disease, the treatment and the consequences.[5,6] Promoting self-management can lead to better health outcomes and reduce care use; however, research suggests that the effect differs depending on the self-management program and the chronic condition.[7,8] In the Netherlands there are many initiatives around self-management. A review, however, has shown that self-management programs are frequently not structurally implemented in practice and that, after running the pilot, a return to former or standard practices is common and a scale up is not accomplished.[6] Successful implementation can, for example, be hindered when self-management programs are not properly embedded in the work processes of the organisation, are not tailored to the patients' situations, or when healthcare providers do not know why or how self-management should be addressed in the consultation.[6,9] To increase the chance for successful implementation, changes in work processes, cultures, and behaviours are required.[10,11] For this reason, a Dutch cooperation called Supportive Self-management (Zelfzorg Ondersteund! or ZO! in Dutch) was set up in 2015 by healthcare providers, health insurance companies, and patient associations.[6]

The national program supported general practices, within healthcare groups, with the structural implementation of self-

* Corresponding author at: Department of Public health and primary care, Leiden University Medical Center, Leiden, the Netherlands.
E-mail address: a.versluis@lumc.nl (A. Versluis).

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management, including digital support, for diabetes, COPD and cardiovascular disease. The chosen self-management interventions or strategies were not limited to a single disease (e.g., focusing only on diabetes), but the program was available for all patients suffering from diabetes, COPD or cardiovascular disease. These three conditions are highly prevalent in primary care in the Netherlands,[12] and the patient needs to make changes in their behaviour to manage the condition properly.[13] The content of the self-management program could differ between healthcare groups (see Box 1 for an example), but always consisted of the following elements (a) practical and psychological support for patients by their general practioner (GP) or nurse practitioner, (b) availability of one or more validated eHealth applications, and (c) support by the patient's direct environment. The program thus assisted the healthcare provider to deliver self-management support for patients, and the patient additionally received a digital tool that further enabled them to take an active role in managing their health by adjusting their lifestyle. Self-management interventions or strategies that were proven to be effective were preferred for implementation. When such interventions were not available, it was possible to implement interventions that did not have proof of effectiveness yet, but the added value of the chosen intervention needed to be clear. The aim of ZO! was to successfully implement self-management for people with a chronic condition in primary care on a large scale to increase their quality of life (QoL) and simultaneously reduce healthcare costs. This study aimed to assess the public value of the self-management program, that was available for about 375.000 chronically ill patients, using a Social Return on Investment (SROI) analysis.[14]

Box 1. Example of a self-management program used in a healthcare group In one healthcare group, individually tailored care was introduced for 22,000 patients with Diabetes Mellitus Type 2. The group of patients received treatment as usual from their GP before they started the self-management program. The patients started with a tailored program with digital possibilities to manage diabetes themselves with their GP as their coach. The aim was to enable patients to self-regulate their diabetes, to improve the QoL of patients by enhancing their information status and limiting the loss of independence. The program (a) trained healthcare providers to achieve shared decision making and to take on a more coaching role, (b) made arrangements with other healthcare providers, like dieticians, physiotherapists and community nurses, enabling them to communicate online with patients and the providers coached the patients practically with lifestyle changes (e.g., joint walking groups), and (c) offered a digital application to patients that allowed them to easily communicate with the healthcare practice and the application provided information on diabetes and lifestyle.

2. Methods

2.1. Supported Self-management (ZO!)

Healthcare groups were informed about the program in several ways; that is, through (a) the website and mailings of ZO! and the national trade associations, (b) their contact person at the health insurance company, and (c) patient associations. A healthcare group that wanted to start with self-management could register at ZO! to qualify for material and non-material support. Health insurance companies had allocated budget for this purpose. The healthcare group applying for support by ZO! needed to submit a plan of action. The plan was written together with patients and health insurance companies; this process was led by a self-management expert of ZO!. The plan included several aspects, which are discussed in Box 2.[15] Once approved by the ZO! Committee, consisting of patient representatives, healthcare providers and health insurance companies, resources, expertise and support were made available. The nature and amount of resources differed per practice and depended on the preferences and needs of the end-users in the healthcare groups.

Box 2. Necessary components of the plan of action to qualify for material and non-material support from ZO

- Assessment of what had already been done with self-management by healthcare providers in the healthcare group.
- Training of GPs and nurse practitioners by experts of ZO! in self-management support and consultation skills, thereby allowing healthcare providers to (a) address self-management appropriately in consultations, (b) tailor self-management to the patient's situation, and (c) motivate patients to be as healthy as possible.
- Training patients in their disease origin, the need for lifestyle change, and ways to accomplish this.
- Involvement of patients in the development of the plan and the content of the training.
- A *validated* eHealth application enabling patients to self-manage their chronic condition. Not all freely available applications could be used. Applications could only be chosen when it was pre-approved by ZO!. To be approved, an application had to meet the basic requirements of ZO! that were established by both experts and end-users. The available applications had different functionalities, for example, offer information, education, measurement data, or online communication options with the general practice. One of the validated applications is 'Engage', which is a digital care platform that can used to increase the involvement of patients in the treatment by offering, for instance, personalised education, self-monitoring and questionnaires which are also shared with the care provider. When applicable, licensing fees for the applications were covered by the health insurance company. The applications were always free of charge for patients.

The content of the self-management support could thus differ per healthcare group. Similarly, different eHealth applications could be used across healthcare groups. This way, healthcare groups could implement a self-management support plan that fit with the needs and wishes of the healthcare group and its patient population.

2.2. Social return on investment

To gain more insight into the social value of self-management by ZO!, an SROI analysis was carried out.[14] This methodology is based on the principles of cost-benefit analysis. The method is used to evaluate the impact from a stakeholder perspective. The SROI method provides a structured and consistent quantitative approach to understanding and managing the impacts of an innovation in healthcare. It accounts for stakeholders' views of impact, and puts financial 'proxy' values on all those impacts identified by stakeholders.[16,17]

For the analysis, it was first determined who the relevant stakeholders were (e.g., patients, health insurance company) and what

their investments were (e.g., time or money, both expressed in financial terms). Next, it was determined what additional value supported self-management by ZO! had, referred to as *outcomes*, and how each outcome can be quantified (using an indicator). Table 1 provides an overview of the involved stakeholders, their respective input, the different outcomes, and indicators. The outcomes and indicators were established in collaboration with the relevant stakeholders and is in line with scientific standards. The outcome 'less absence due to sickness', for example, was quantified using the absenteeism costs of employers, and the outcome healthcare costs was established by comparing the care costs of patients involved in supported self-management to those who did not receive supported self-management. Assigning a financial value to a softer outcome measure such as QoL, however, is more complicated.[16] In the current SROI analysis, QoL was quantified using Quality Adjusted Life Years (QALYs), and the expected benefit in QALYs was based on scientific literature.[18,19]

One of the SROI principles is not to overclaim. Therefore, the valued outcomes are corrected for deadweight and attribution. Deadweight refers to the probability that the outcome would have happened spontaneously, and attribution refers to the probability that the outcome is due to the effort or input of others. By conservatively applying the impact factors deadweight and attribution, overclaiming is avoided and the credibility of the SROI analysis is improved.

For ZO! a series of SROI analyses were carried out. The first analysis in 2014 was a forecast for 2015–2019, mainly based on (theoretical) assessments, jointly made by the stakeholders. Each following year, from 2014 until 2017, this forecast was updated with: (a) *meta*-analyses of relevant international studies on the effect of self-management, starting with a comprehensive 'knowledge synthesis' carried out in 2015,[6] (b) the results of regional implementations of self-management (stimulated by ZO!) including seven regional SROI analyses, and (c) analysis of the difference in declaration data of all health insurance companies between healthcare groups that implemented self-management and healthcare groups that did not implement self-management. This way, the SROI was validated further with actual patient data each yearly iteration. For each SROI analysis the impact map (see Table 1) and the valuation of inputs and outcomes was reconsidered with all stakeholders. This resulted in an aggregated and validated SROI analysis in 2017 approved by all stakeholders. The analysis gives insight into the impact of the care innovation on the relevant stakeholders and helps to identify potential imbalance between the stakeholders. Health insurance companies can use this knowledge to alter how budgets are assigned.

3. Results

From 2015 to 2019 approximately 62 healthcare groups (covering 1000 GPs) have started with a self-management program through ZO!. The healthcare groups are spread throughout the Netherlands, and are located in both urban and more rural regions. Since the start of ZO! approximately 375,000 people with a chronic condition have used an eHealth application for disease self-management.

The summary of the results is shown in Fig. 1. It shows the social value as an average value per stakeholder (per patient per year for the 2015–2019 timeframe) and the SROI ratio. The SROI ratio was 4.90 euros; that is, each invested euro translated to a social return of 4.90 euros per patient per year (measured over 5 years). Below we discuss how the inputs and outcomes are valued.

3.1. Input

Patients, healthcare providers, and healthcare groups invested time (initial and structural) to implement and execute self-management. Patients spent extra time learning and using self-management tools. Professionals spent time getting trained to support patient self-management and selecting and informing patients. These time investments were calculated for an average GP's practice. The time investment of patients and healthcare providers is valuated according to the recommended valuation method of the National Healthcare Institute (in Dutch Zorginstituut Nederland).[20]

Healthcare professionals and groups incur out-of-pocket costs for training, software purchase and maintenance, and project management to implement and execute the self-management program. Healthcare groups additionally have out-of-pocket cost associated with the ZO! program, including a reimbursement for healthcare groups for the initial investment for implementing self-management.

Table 1
Social Return on Investment impact map of ZO!

Stakeholder	Input	Outcome	Indicator
Patient	Time (associated with learning and using the self-management tools)	Better quality of life	Quality Adjusted Life Year
		Less time spent in care process	Time saving by self-management
General practitioner	Time and costs (associated with implementing and executing supported self-management)	Better efficiency of care	Time saving by reduction of consultation
Healthcare group		None	
Health insurance company	Costs (associated with the ZO! program)	Lower care costs	Average care costs per patient for: • Pharmacy • Medical specialists care • Mental healthcare • Community nursing • Other Costs are based on Vektis declaration data
Employer	None	Lower loss of productivity	Cost of care related absence
		Decrease in work absence	Cost of sickness absence
Municipality	None	Increase in independence	Average Social Support Act (i.e., WMO in Dutch) costs per patient
		Less long-term work absence	Average Work and Income Act (i.e., WIA in Dutch) costs per patient

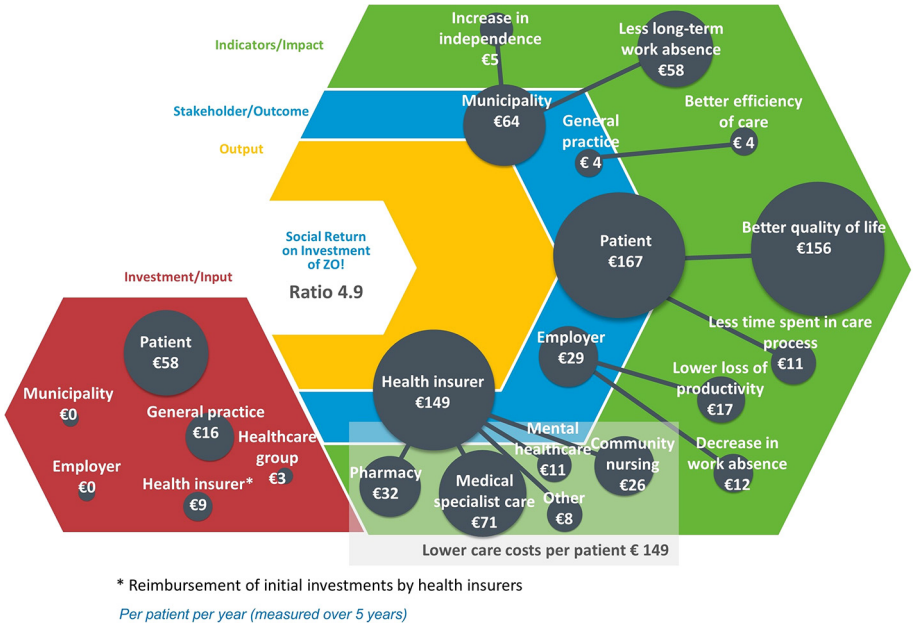

Fig. 1. Social return of investment of supported self-management (up to and including 2017) conducted by Vital Innovators (https://vitalinnovators.nl).

3.2. Outcome

The main value drivers are an increase in QoL (for patients) and a decrease in healthcare costs (for health insurance companies).

The QoL increase is based on an average Quality Adjusted Life Years (i.e., QALY) gain of 0.04 for patients that benefited from the self-management based on scientific literature[18,19]. An average QALY is valued at €36.000 based on the recommended value of the National Institute for Public Health and the Environment (RIVM).[21]

Based on actual declaration data, a decrease in healthcare costs was found. Specifically, patients in healthcare groups that implemented self-management showed a 10 to 18 percent decrease in healthcare costs compared to patients in healthcare groups that did not implement self-management support. Decrease was mainly due to lower pharmacy costs and less medical specialist care costs.[14]

4. Discussion

The results provide initial evidence that a self-management program implemented through ZO! can provide a social return for the various stakeholders involved. Yet the costs and benefits are inequitably distributed across the relevant stakeholders. It highlights a clear need for lasting support for healthcare providers, both material and non-material, when implementing self-management in practice. The results provide an indication that healthcare budgets may need to be differently assigned by health insurance companies to allow for a successful, large-scale implementation of self-management in practice.

The findings of this study were in line with previous research showing that self-management programs can lead to a reduction in costs.[13,22] A systematic review has shown that SROI analyses, conducted in the area of health promotion, yielded social return values between 1.10 and 11.00 euros.[17] The social return value that was identified in this SROI (i.e., 4.90 euro) was thus in line with this finding. Moreover, the increase in QoL and the decrease in healthcare costs as a result of self-management is in line with previous international studies.[19,23–26] Even though there are numerous self-management support interventions available, this is – to our knowledge - the only national program that supported healthcare groups with implementing a self-management support intervention that is tailored to the specific needs of the practice and the patients. More research is needed to support the public value of the self-management support program and should identify how long the cost reduction lasts after patients complete the program. Nevertheless, the found decrease in healthcare use seems promising, because – worldwide – the population is ageing and the number of chronic diseases are rising, putting enormous pressure on the healthcare systems[1,2]. There is therefore a need for viable methods to support self-management and this national program shows potential.

There are limitations that are worth mentioning. Even though objective data was used in the analysis where possible (e.g., healthcare costs), there was no objective data available for all specified outcomes (e.g., QoL). The actual impact on, for example, QoL may thus be somewhat different. It would be interesting for future studies to examine what the actual effect of supported self-management is on QoL,[18] for example, by measuring QoL before and after implementation of supported self-management.[27] Another limitation of the current study is that the actual use or adherence to the self-management program is not registered. There was only data on whether patients registered in the eHealth application. Moreover, there were no sociodemographic or clinical data available for analysis (i.e., for privacy reasons). The actual impact of the self-management intervention, however, is likely to vary based on these factors (i.e., usage, sociodemographic and clinical data). The current results thus provide an impact estimation, and variability herein can be taken into account in future studies. Furthermore, the SROI provided insight into the impact of the national program; however, it did not allow us to draw conclusions about the effectiveness of the specific interventions that were used in different healthcare groups. It would be interesting for future research to examine whether the results differ depending on these factors and to adjust the program were necessary.

Implementation of supported self-management may thus give a social return on investment; however, it does not guarantee successful implementation. There are various factors that determine how rapidly, and successfully new innovations are implemented. These factors need to be identified and addressed accordingly.

[10,28,29] For instance, high (start-up) costs may be seen as a barrier, although financial support or funding can actually promote implementation.[30] Changes in systems, cultures, and behaviours are important to increase the chance of successful implementation[10]: (a) general practices must be trained, supported and funded, (b) ICT suppliers must be encouraged to co-create platforms with end-users (both patients and professionals), (c) cooperation between healthcare providers, patients and health insurance companies is essential, (d) the new way of working must fit with the current practices and ways of working, (e) effective interventions and methods must be easily available and easy to use, and (f) scientific research is needed to see if the interventions work. It is important that the positive effects and success stories are shared, and that it is clearly communicated why the innovation is better than the traditional working method.

5. Conclusion

To conclude, the SROI analysis showed that self-management programs in primary care can provide a social return on investment. Specifically, each euro of input yields a social profit of 4.90 euros per patient per year (measured over 5 years). The main value drivers for this are an increase in QoL and a decrease in healthcare costs. For this, time investments are needed from patients, general practices and healthcare groups, and monetary investments are needed from general practices and healthcare groups. Healthcare budgets may need to be differently allocated; that is, health professionals require (continuous) support for the successful implementation of self-management support programs in practice. The initial findings suggest that carefully implementing self-management programs into general practice has cost benefits and might positively influence patient outcomes.

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Esther Talboom-Kamp: Conceptualization, Methodology, Writing - original draft, Writing - review & editing. **Pim Ketelaar:** Conceptualization, Methodology, Formal analysis, Writing - review & editing. **Anke Versluis:** Writing - original draft, Writing - review & editing.

Conflict of interest

Esther Talboom-Kamp was a member of the board of 'Zelfzorg Ondersteund' from 2015 to 2019. Pim Ketelaar was employed at Vital Innovators from 2012 to 2018, the company was responsible for conducting the SROI.

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