

Sustaining new work practices in long-term care

A study about the influence of the inner organizational context on the sustainability of new work practices in the Dutch long-term care program: “Care for Better.”

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Introductory remarks

This thesis is written in order to complete the master Healthcare Management at the Erasmus University of Rotterdam. The research is part of the larger evaluation program called: "Care for better." The Care for Better program appealed to me, because my sister depends on the quality of care that she receives in long-term care for the disabled. A focus on quality, like in improvement projects, is important for the quality of care that she and others receive. In order to obtain the increased quality from improvement projects, new working procedures have to be sustained. Insight into what influences sustainability is, therefore, an essential research subject.

I would like to thank my graduation supervisor Mathilde Strating for giving me the possibility to contribute to a large evaluation program, such as the Care for Better program. Despite her own busy schedule, I have always felt fully supported. This also applies to my teacher from the Netherlands Defense Academy, Manon Andres, who also supported me during the process.

Jacqueline Waringa

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Samenvatting

In de zorg wordt steeds vaker samengewerkt om de kwaliteit van werkprocessen te verbeteren. Een middel hiervoor zijn kwaliteitsverbeterprojecten, waarin verschillende teams uit verschillende organisaties samenwerken, op basis van de doorbraakmethode, om specifieke onderdelen van hun zorgprocessen te verbeteren. Hoewel meerdere studies onderzoek hebben gedaan naar het effect van kwaliteitverbeterprogramma's, voor wat betreft de implementatie van nieuwe werkwijzen op de korte termijn, is er minder bekend over de borging van deze nieuwe werkwijzen op de lange termijn. Het doel van deze studie is om te onderzoeken wat de invloed van de interne organisatiecontext is op het borgen van nieuwe werkwijzen in de langdurige zorg.

Borging kan worden onderscheiden in twee dimensies: routinisering en institutionalisatie. Routinisering is het proces waarin medewerkers van de organisatie routines ontwikkelen en er gewend aan raken. Institutionalisatie is het proces waarin een organisatie een facilitair raamwerk creëert wat het voor de medewerkers mogelijk maakt om routinisering plaatst te laten vinden. De twee dimensies van borging worden, onder andere, door de interne organisatieomgeving beïnvloed. De interne organisatieomgeving bestaat uit: organisatiesteun, organisatiecultuur, leiderschap en de mate van betrokkenheid van de teamleden bij de kwaliteitsverbetering. In de literatuur is aangetoond dat deze aspecten invloed hebben op de implementatie van nieuwe werkwijzen, over hun invloed op borging is minder bekend.

Van 2006 tot 2009 heeft het grootschalige verbeterprogramma "Zorg voor Beter" plaatsgevonden in Nederland. De doelstelling van het programma was om de kwaliteit van de zorg in de ouderen-, gehandicapten- en thuiszorg te verbeteren. Het programma richtte zich op zeven specifieke kwantiteitsonderwerpen, namelijk: decubitus, eten en drinken, valpreventie, seksueel misbruik, patiëntzeggenschap, medicatieveiligheid en probleemgedrag.

Dit onderzoek maakt gebruik van de data die is verzameld tijdens het evaluatie onderzoek onder 217 deelnemende verbeterteams van het Zorg voor Beter programma. De data is verzameld door het Instituut Beleid & Management Gezondheidszorg (iBMG) van de Erasmus Universiteit Rotterdam op twee verschillende momenten: één week nadat de laatste bijeenkomst was gehouden (T1) en twaalf maanden later tijdens de evaluatie meting. Respondenten die zowel op T1 als op T2 aan het onderzoek hebben deelgenomen zijn in dit onderzoek meegenomen (N= 69, responsie van 23%).

Om de samenhang tussen de factoren uit de interne organisatie omgeving met borging te bepalen zijn er correlatie analyses uitgevoerd. Vanuit deze correlatieanalyses zijn de variabelen met een significant verband met de afhankelijke variabelen meegenomen in een multivariate regressieanalyse. De resultaten uit deze analyses laten zien dat leiderschap een significante invloed heeft op zowel routinisering als op institutionalisatie (routinisering: $\beta= 0,55$; $p= 0,00$ en institutionalisatie: $\beta= 0,58$; $p= 0,00$). Uit de resultaten blijkt dat er een verschil is in het ervaren niveau van borging door het management niveau ten opzichte van de uitvoerende zorgprofessionals. Respondenten met een management functie scoren significant hoger op borging dan de zorgprofessionals. Alle andere variabelen lieten geen significante relatie zien met zowel routinisering als institutionalisatie.

Vanuit het onderzoek komen sterke aanwijzingen naar voren dat de succesfactoren in de implementatiefase niet dezelfde zijn als die voor de borgingfase. Hieruit blijkt dat organisaties na de implementatie aandacht moeten blijven besteden aan de nieuwe werkwijze, wil deze ook geborgd worden. De bewustwording van het belang van de borgingsfase is voor een organisatie essentieel, wanneer een werkwijze namelijk niet wordt geborgd wordt de investering die er in tijd, geld en middelen in de implementatiefase aan is besteed niet terugverdiend. De resultaten van dit onderzoek zijn vooral relevant voor managers. Leidinggevendenden dienen zich namelijk bewust te zijn van de invloed van leiderschap op de mate van borging van nieuwe werkwijzen. Ondanks het wegvallen van het budget en de middelen vanuit de implementatiefase, kan leiderschap een positieve bijdrage leveren aan het borgen van nieuwe werkwijzen. De positieve invloed van leiderschap op borging sluit aan bij de bevindingen vanuit eerdere studies. Naast leiderschap, dient er extra aandacht te zijn voor het ervaren niveau van borging van de zorgprofessionals. Daar waar managers de perceptie kunnen hebben de nieuwe werkwijze voldoende te faciliteren en te ondersteunen, kunnen de medewerkers op de werkvloer andere opvattingen hebben. Het bespreekbaar maken van behoeftes van de zorgprofessionals, voor wat betreft de borging van de nieuwe werkwijze, is van belang voor managers.

Concluderend, de resultaten van dit onderzoek ondersteunen de stelling dat succesfactoren van de interne organisatiecontext voor de implementatiefase verschillen van die voor de borgingsfase.

Abstract

In healthcare, more and more quality improvement collaboratives (QIC's) have been started to improve the quality of care. In these QIC's, several teams from different organizations work together by means of the break-through method, in order to improve specific parts of their care processes. While many studies have examined the effectiveness of QIC's, by studying the results of implementation efforts in the short term, less research has been conducted to determine what happens beyond that point. The aim of this study is to investigate the influence of the inner organizational context on the sustainability of new work practices in long-term care.

Sustainability can be distinguished by two dimensions: routinization and institutionalization. Routinization is the process in which actors within the organization develop and adapt their routines to new work practices. Institutionalization is the process in which the organization adapts and develops its facilities in order to make routinization possible. The level of sustainability can, among others, be affected by the inner organizational context. This context entails the following aspects: organizational support, organizational culture, leadership, and a commitment to quality improvement. These aspects have been shown to affect the implementation of new work practices. Less knowledge is available about their influence on sustainability.

From 2006 to 2009, a large-scale improvement project called "Care for Better" was run in the Netherlands. Its objective was to improve the quality of care for the elderly, the disabled and home care. The program consisted of seven QIC's, each focusing on a specific quality topic: pressure ulcers, eating and drinking, prevention of sexual abuse, client autonomy, medication safety, fall prevention, and prevention of (social) behavioral problems.

This study analyzes secondary data from a larger evaluation study of 217 QI teams participating in the "Care for Better" program. Data on these QI teams was collected by the Institute of Health Policy and Management (iBMG) of the Erasmus University Rotterdam at two points in time: a week after the final meeting was held at the end of the collaboration (T1), and twelve months later at the follow-up measurement (T2). The individuals who had completed both the T1 and T2 questionnaires were included in this study (N= 69; 23% response rate). Correlations were calculated to analyze the relationship between the factors of the inner organizational context and sustainability. Subsequently, the variables with a significant effect on the dependent variables were included in multivariate regression analyses.

The results show that leadership has a significant influence on both routinization and institutionalization ($\beta = 0.55$ $p = 0.00$ and $\beta = 0.58$ $p = 0.00$). Also, the frontline professionals had a significantly lower level of perceived institutionalization than management and quality staff. Furthermore, the results show that the improvement team project leaders scored significantly more positive on routinization than the other team members. All other variables showed no significant relationship with either routinization or institutionalization.

This research shows that there is a clear difference between the success factors in the implementation phase in contrast with the sustainability phase. This indicates that organizations need to continue to devote attention to the new work practices after the implementation phase has ended in order to sustain them. The awareness of the importance of the sustainability phase is essential for an organization, otherwise the investment made in the implementation phase is lost. These findings are specifically interesting for managers. Even without a budget, team leaders can influence the level of sustainability. The findings align with other studies about the relationship between leadership and sustainability. The second finding of the study is that managers experience a different level of sustainability than frontline professionals. For example, managers can have the perception that they have facilitated and supported their employees in order to sustain the new work practices, while frontline professionals may have a different opinion about the sufficiency of these facilities and support. For managers, it is relevant to discuss this topic during the sustainability phase in order to reduce this “gap” in the perceived sustainability of the new work practices.

To conclude, this research found evidence that success factors of the inner organizational context in the implementation phase and the sustainability phase differ from each other.

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1. Introduction

The worldwide financial crisis is hitting the healthcare sector. Budget cuts, inefficient care and an aging population are creating the need for quality improvements in healthcare delivery. Quality improvements are especially important for long-term care, where the pressure on care delivery is increasing due to, on the one hand, the predicted demand for care and, on the other hand, labour shortages (Deraas et al., 2011). In recent years, in many different countries, considerable resources have been assigned to the implementation of quality improvement collaboratives (QIC's) to improve the quality and safety in long-term care and, at the same time, to reduce costs. Quality improvement collaboratives has its origin in the United States, but is now used all over the world (Wilson et al., 2003). One of the improvement approaches most used by these collaboratives is the Breakthrough method, which was developed by the Institute for Healthcare Improvements (IHI 2003). The essence of the method is that different teams from different organizations within the QIC's collaborate to improve quality of care. Wanting to improve the quality of care means, among others, changing the work practices of an organization and sustaining them on the long-term. This is a complex task, which often fails. Many of the innovations that are initially successful fail to become part of the habits and routines of the organization (Stirman et al., 2012). It often happens that new work practices obtained in research slowly but surely disappear after the expiry of a project (Slaghuis et al 2011).

Although many studies examined the effectiveness of QIC's by studying the results of implementation efforts in the short term (Schouten et al. 2008), less research is conducted to determine what happens beyond that point (Hovlid et al., 2012). Sustainability of new work practices, and which factors influence sustainability, are relatively new research subjects (Stirman et al., 2012). In the last few years, researchers have tried to investigate which factors affect sustainability (Chaudoir et al., 2013; Cramm et al., 2013; Makai et al., 2012). The "Care for Better" program created the opportunity to investigate the influence of the inner organizational context on sustainability of new work practices in long-term care.

1.1 Care for Better program

Between 2006 and 2011, the quality improvement program "Care for Better" was carried out in the Netherlands. The program consisted of seven QIC's using Breakthrough methodology, each of them focusing on a specific quality topic. The following seven QIC's were run: pressure ulcers, eating and drinking, prevention of sexual abuse, client autonomy, medication safety, fall prevention, and prevention of (social) behavioral problems (Slaghuis et al., 2011). The aim of each QIC was to develop, sustain, and spread quality improvements

(Strating et al., 2010). The teams were assisted by experts and peers with selecting the quality improvement interventions to address the current problems or needs within their organization (Shaw et al., 2012; Strating et al., 2010). In addition, the QIC multidisciplinary teams also exchanged evidencebased work methods, best practices and supported each other to achieve better quality improvements in care (Brian & Mittman, 2004; Shaw et al., 2012). Teams set local goals and reported on local indicators. Agreement was reached about a set of measures, which all teams registered to keep the teams focused on the collaborative goals. The Plan-Do-Study-Act principle, which is a step-by-step approach to changing care practices, guided by the measured results, was used to facilitate the learning process (IHI, 2003).

In the Care for Better program, teams from the different organizations, including nursing homes, homes for the elderly, homecare, and care for the disabled participated (Slaghuis et al., 2011). The Institute of Health Policy and Management (iBMG) of the Erasmus University of Rotterdam monitored and evaluated the QIC's (Stoopendaal et al., 2009; Strating 2011). Based on before and after measurements, the effectiveness of these QIC's in the short-term was described. An example of the different interventions that these QI teams implemented can be found in the article by Stoopendaal & Bal (2013). Strating and colleagues (2011; 2012) concluded that the overall results of the program were mostly positive, although; there was considerable variation between teams and collaboratives. Their results showed that achieving changes in the processes of care requires interplay between inner organizational factors at different levels. At a team level, an innovative culture and professional' commitment were instrumental to improving care. At an organizational level, organizational support has been shown to be an important factor. Also, other studies have supported the notion that a layered approach is necessary to achieve improvements in quality of care, and have provided insight into the determinants of success (Cretin, 2004; Grol & Grimshaw, 2003; Stirman, 2012). It remains unclear, however, to what extent these inner organizational factors play a role in sustaining new work practices. Sustaining new work practices may imply changing entire organizational systems and cultures, and may need other facilitating conditions than those for initial implementation. Therefore, the evaluation study of the Care for Better program included a follow-up measurement, which has been conducted one year after the end of each QIC to investigate the degree of sustainability and facilitating conditions within the participating organizations.

1.2 Research questions

The aim of this study is: *“to investigate what aspects of the inner organizational context affect the sustainability of new work methods within the participating organizations of the Care for Better program.”* The answer to this question can provide useful insights into how new work practices in the long term can be maintained within organizations. Understanding which factors enhance the impact of quality improvement initiatives can help professionals to achieve long-lasting breakthrough improvements in care delivery to patients in a wide variety of quality problems.

The following theoretical and empirical questions are addressed:

- 1 How can sustainability be conceptualized and operationalized?
- 2 Which aspects of the inner organizational context are proposed in the literature as the most influential on sustainability?
- 3 To what extent do the aspects of the inner organizational context affect the sustainability of new work practices in the Care for Better program?
- 4 Which practical recommendations can be derived from the empirical findings?

The research starts with the theoretical framework concerning sustainability. This chapter discusses the first and second research questions, and provides a number of hypotheses. The third chapter explains the methods used for data collection and the statistical analyses made to investigate the influence of the aspects of the inner organizational context on sustainability. In chapter four, the results of the data analyses are discussed. In addition, based on the empirical data, the third research question is answered in this chapter. The results are further analyzed in the discussion chapter. Practical recommendations on sustaining new work practices are given in chapter five. This study closes with the final conclusion at the end of chapter five.

2. Theoretical Framework

This chapter focuses on conceptualizing sustainability. It discusses the findings of the literature about sustainability in relation to the inner organizational context. This literature study led to the formulation of several hypotheses about the influence of organizational context on sustainability, which are formulated in this chapter. Furthermore, in this chapter the first and second research questions are answered.

2.1 Sustainability

Worldwide attention for the sustainability of healthcare intervention programs is increasing. The goal of sustainability is that new work practices and improved outcomes of QIC's becomes the norm within an organization (Buchanan et al., 2005). This states the importance of sustainability. Even though the attention for sustainability is growing, there is no consensus on the conceptual and operational definitions of sustainability (Shediac- Rizkallah & Bone, 1998). An example of a definition of sustainability is: "The sustainability of change can be defined broadly as the process through which new working methods, performance goals and improvement trajectories are maintained for a period appropriate to a given context" (Buchanan et al., 2005). Slaghuis (2011) adds to this definition that it is a dynamic process in which actors in the relevant practice develop and customize these new working methods. In this study, the definition by Slaghuis et al (2011) is used. They further state that sustainability consists of routinization and institutionalization. Routinization is the process in which participants within an organization develop and adapt their routines to new work practices. Institutionalization is the process in which an organization adapts and develops its framework to make routinization possible. Routinization and institutionalization are often taken as synonymous; however, Slaghuis et al. (2011) argue that each concept has its distinct value in the measurement of the level of sustainability of new work practices. To understand their differences and mutual relationship that ultimately ensure sustainability, both concepts are discussed separately.

Routinization

Routinization is when a new work practice has become a standard element in the activities of an organization. In other words, when it has become a routine for employees and thus is no longer viewed as new (Greenhalgh et al., 2005). This definition of routinization can only be understood when routines are specified. Feldman (2003) defines a routine as a repetitive, recognizable pattern of interdependent actions involving multiple participants, with the main goal to reduce uncertainty in organizations and enhance governance. In short, routines are

considered sustained when a new work practice in an organization is accepted and performed by every involved employee (Slaghuis et al. 2011). Routines in organizations can be created in different ways. Sometimes they can simply emerge, but normally most routines are specifically designed for work practices (Feldman & Pentland 2008).

Although, routines usually provide a level of stability, they can also be dynamic and flexible (Slaghuis et al., 2011). In their study Slaghuis et al. (2011: 2) define routinization as the sustenance of the organizational routine(s) for work practices through the mutual reinforcement of principles and practices. Principles, for example, are known by the participant and are used to guide and explain their actions in the routine. Practice implicates that, through their performances, participants develop a shared “formal” understanding, as well as tacit knowledge of what needs to be done in a specific situation (ibid). In addition, principles can be adjusted by the participants. For example, this can happen when their experiences and the insights gained through practices indicated the necessity to adjust the principles (ibid.). Pluye and colleagues suggests that routinization plays an important role in the sustainability of healthcare programs (2004).

In addition to sustaining new work practices by means of routinization, it is equally important to have an infrastructure that contributes to the preservation of work practices. Creating this infrastructure is called institutionalization.

Institutionalization

To define institutionalization, this article uses the definition of Slaghuis et al., (2011: 3). They describe institutionalization as the gradual adaptation of the organizational context, including structures and processes, to new work practices. The process of institutionalization in an organization can differ between situations and settings (Sillence et al., 2001). This is mainly because organizations are political environments where different political conflicts and motives can influence institutionalization. These motives influence the behavior of employees in an organization and thereby create a certain situation where the institutionalization of new work practices is an easy or difficult process. Besides the political aspect of institutionalization, it also consists of a more abstract component, namely the facilitating framework. This framework provides and creates the conditions that make it possible to implement and sustain routines in an organization (Slaghuis et al., 2011).

There are different levels within healthcare organizations where sustainability can be studied, including the level of the individual patient, the professional, the team, and at an organization

level (Grol & Grimshaw, 2003; Ferlie & Shortell, 2001). Although a variety of factors may create conditions in these levels that facilitate initial implementation, their presence or influence may diminish over time. Even when initial implementation efforts are successful, interventions or programs do not necessarily continue as originally planned (Stirman et al., 2012). Change is rarely easy, as innovation requires changes in clinical practice, better collaboration between disciplines, or changes in the organization of care (Grol & Grimshaw, 2003). Because of implementation difficulties, there is an increasing interest in which organizational factors influence the sustainability of new work practices. Therefore, more needs to be known about what these factors are, and how they interact with practice (Stirman et al., 2012). Knowledge of what affects sustainability can be used to enhance the likelihood that interventions will continue after implementation (Campbell et al., 2011). The goal of sustainability is that new work practices and improved outcomes of QIC's become the norm within an organization (Buchanan et al., 2005).

2.2 Inner organizational context

Healthcare organizations are complex systems which arise from a collection of individual practitioners. These practitioners have the freedom to act in ways that are not always totally predictable because the care for a patient may ask this of them (Plsek, 2003). The practitioners work within an organizational context. Each organization has its own specific context and, therefore, provides a different environment for sustaining new work practices. Also, different features of the organizational context influence the likelihood that an innovation will be sustained and thus adopted by employees and incorporated into "business as usual" (Greenhalgh et al., 2005). In addition, Stirman et al. (2012), found in their review-study among sixty studies to identify predictors or associated factors of sustainability, that one of the most influential aspects for the implementation of new work practices is the organizational context. To study the effect of the organizational context on sustainability, several aspects will be derived from the literature which scholars have found to be the most influential.

The literature distinguishes the inner organizational context from the outer organizational context. The inner context, for example, includes size, level of maturity, antecedents for innovation in general, and the readiness of the organization for innovations (Germain, 1996). The outer organizational context includes the impact of environmental variables like policy and law (Greenhalgh et al., 2004). The Care for Better program focuses on the inner context, as the QIC's were meant to improve internal work processes at the level where care is provided for the patient. Consequently, the inner context of an organization is assumed to

have a direct effect on the sustainability of work practices. Therefore, the inner context can be influenced by the organization itself, for example, by changing its systems for delivering care in alignment with the new work processes (Cretin et al., 2004). The inner context is important in order to achieve the intended change for sustaining new ways of working. Cretin et al. (2004) developed a model for a chain of action to investigate, among others, the aspects of the inner context that are needed to improve quality. Within his framework, he distinguishes the inner context in the following aspects: organizational support, culture, leadership and quality improvement commitment (QIC). This study examines the degree to which these aspects affect the sustainability of new work practices during the Care for Better program. The chain of action model can provide useful insight into the relationship between sustainability and the inner organizational context.

Organizational support

Organizational support has proven to be important in implementing innovations (Mills & Weeks, 2004). Silimperi et al. (2002) indicate that when organizations create the capacity in order to perform the new work practices, this will also influence the sustainability of these new work practices. Capacity building can be described as the professional and organizational resources associated with the provision of care. The availability of, and access to, resources for employees are derived from organizational support. Specifically, organizational support means facilitating the employees with the necessary materials, knowledge, skills, time, and room for creative thinking, in order to carry out their responsibilities (Plsek, 2003; Øvretveit et al., 2002). In addition, organizational support means that an organization ensures the availability of office space, information technology and materials (Kimberly & Cook, 2008). It also means providing the necessary training or courses to facilitate the skills and knowledge needed by employees to perform new work practices (Yin, 1981). In addition, integrating the training of staff in new work practices is mentioned as a strategy to sustain new work practices (Parand et al., 2012). Hence, the following hypothesis is formulated:

H1: Organizational support has a positive influence on the sustainability of new work practices.

Group Culture

Many studies investigate the influence of organizational culture on the effectiveness of implementing new work practices (Kimberly & Cook, 2008; Buchanan et al., 2005; Strating et al., 2011; Lin et al., 2005). In order to investigate the influence of culture on sustainability,

this study uses the definition of culture by Lin et al. (2005: 142): “culture represents the widely shared beliefs, norms, and values among workers in an organization.” In their study, the “Competing Values Framework” by Zammuto et al. (2000), was used to assess organizational culture. The framework distinguishes four types of culture: hierarchical culture, group culture, rational culture, and developmental culture. Hierarchical culture creates a formalized and structured work environment where formal procedures and rules govern what employees do. In contrast, group culture has a more informal work climate with a focus on teamwork, participation, and consensus (Hooijberg & Petrock, 1993). Developmental culture adds more risk taking to the informal environment of group culture. It promotes innovative solutions to problems. Finally, rational culture is more focused on achieving goals and developing measures of success (Shortell et al., 2004). Studies are not unanimous about which culture, or combination of cultures, provide(s) the best base for sustaining new work practices. In fact, Shortell et al. (2004) found that a balance of the four cultures only had a marginal effect on the effectiveness of teams in improving the quality of care. While on the other hand, Lemmens et al. (2009), found that group culture appears to be a predictor of process implementation. Because there is no consensus on which culture positively influences the sustainability of new work practices, one specific culture will be tested. In this study group culture is analyzed:

H2: A group culture, within an organization, will enhance the sustainability of new work practices.

Leadership

The third aspect of the inner organizational context is leadership. Leadership plays an important role in an organization’s success in sustaining new work practices (Damanpour & Gopalakrishnan, 1998). Its importance has been shown in Scheirer’s review study (2005), in which thirteen of his studied cases emphasized the role of leadership on sustainability. Successful leaders understand that change involves a political process of developing and nurturing support from organization members at a team level, but also at an individual level (Fernandez & Rainey, 2006). The most effective leaders are those who are supportive and actively involved with their employees and the tasks of their employees (Ford et al., 2011). As a result, they know how to utilize their human resources (Shortell et al., 2004). In this study, this form of leadership is referred to as “active” leadership. The literature suggests, that there is a positive relationship between active leadership and sustainability:

H3: Active leadership has a positive enhancing effect on the sustainability of new work practices.

Quality improvement commitment

The last aspect of the organizational context, that Cretin et al. (2004) suggest as important for quality improvement within an organization, is quality improvement commitment (QIC) of the organization. Lin et al. (2005) state that an organization's commitment to quality depends on the support from the senior leadership and employee involvement in quality improvement activities. Supporting QIC is essential, because people are not passive receptors of innovations. They are human, and therefore have all kinds of thoughts and feelings about innovations based on experience, knowledge, evaluation etc. (Greenhalgh et al., 2004). One of the purposes of QIC is, by means of registering results, sharing what has been achieved, and advocating policy changes to reinforce the notion that sustaining new work practices is everyone's business. So, successes and lessons learned should be shared (Silimperi et al., 2002). The more organizations involve their teams in quality improvement activities, the more these professionals will be committed to implementing changes (Lin et al., 2005). Lin et al. (2005) also found that quality improvement commitment leads to positive perceptions of professionals of the effectiveness of changes. In the literature, widespread participation in the change process is the most frequently used approach to overcome resistance to change (Silimperi et al., 2002). It can thus be expected that:

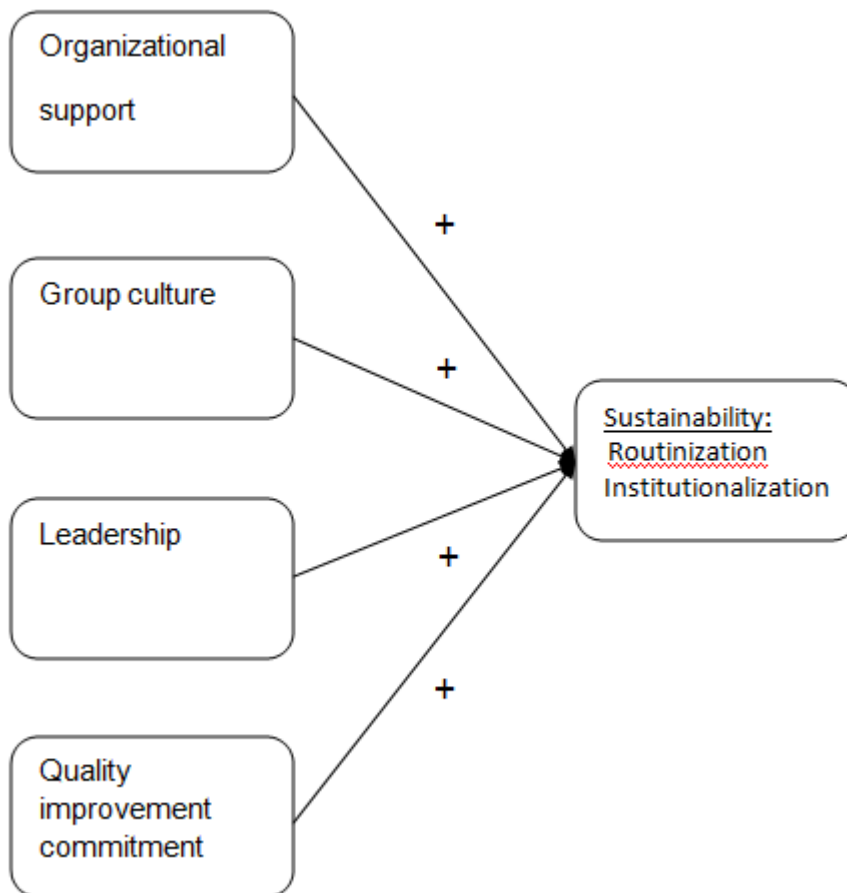
H4: Quality improvement commitment has a positive effect on the sustainability of new work practices in an organization.

The hypotheses are incorporated into the conceptual model of this study. This model is discussed in the following paragraph.

2.3 The conceptual model

The research model is a schematic representation of the hypothetical relations between the variables of interest. It indicates the influence of various aspects of the organizational context on the two dimensions of sustainability: routinization and institutionalization. The model is based on the literature review concerning the major aspects of influences on sustainability.

Figure 1: Conceptual model



The model suggests that sustainability is the dependent variable, which is affected by the four independent variables of the inner organizational context. These four aspects are assumed to have a direct positive effect on sustainability.

2.4 Conclusion

This chapter answers the theoretical research questions, by stating that sustainability is achieved when new work practices are maintained for a period of time and have become routine within an organization. This study uses the concept of Slaghuis et al. (2011), who distinguish two dimensions of sustainability: routinization and institutionalization. Besides the question of what sustainability is, this study examines what influences the sustainability of new work practices in an organization. Findings from the literature suggest that the inner organizational context is an important aspect of influence. The inner organizational context is divided into four elements based on the chain of action model. These four aspects are: organizational support, culture, leadership and quality improvement commitment. The next chapter will discuss how the influence of these four aspects of inner organizational context on sustainability is investigated.

3. Methods

To answer the main question of this study a quantitative approach is used, for which different statistical analyses have been performed. This chapter describes the study population, how data is collected, and how the data is analyzed.

3.1 Study and design

This study is a multiple-case longitudinal study, in which seven different QIC's are investigated, and data is obtained from two different measurement periods. This data are derived from questionnaires received from the end-measurement and follow-up study, which makes it possible to perform statistical analyses to study the relation between the inner organizational context and sustainability. Quantitative research fits best with the main question, as it provides the opportunity to test the influence of the independent variables on the dependent variable.

This study analyzes secondary data from a larger evaluation study of 217 QI teams participating in the national Dutch quality program: "Care for Better," Longitudinal data on these QI teams were collected by the Institute Health Policy and Management (iBMG) of the Erasmus University Rotterdam at two points in time: a week after the final meeting was held at the end of the collaboration (T1), and twelve months later at the follow-up measurements (T2). The follow-up data collection (T2) was launched to study the long-term implementation of the quality improvements in practice (Slaghuis et al., 2011). The collaboratives were run between 2006 and 2009, and the follow-up study was performed in two rounds, the first in 2009 and the second in 2011.

The data were acquired by means of questionnaires received from participating teams about the implementation of the developed work methods. At the end of April 2009, all former members of the QI teams, who followed the program more than a year ago, received a questionnaire. These invitations to participate were only sent to the teams that had finished the "Care for Better program" for at least 12 months (Slaghuis et al., 2011). In the following weeks, the researchers of iBMG telephoned the participants to answer questions, map problems and encourage participation (ibid.).

3.2 Sample and procedure

Project leaders from the 217 QI teams selected three or four team members to complete the questionnaires (see Table 1). Each selected QI team member received a questionnaire by mail within one week after the final conference (T1) (see Table 1). At T1, 345 individuals (out

of 775; a 45% response) completed the questionnaire, representing 138 teams (out of 217; a 64% response). The average number of team members per team responding was 3.10 ($SD=1.23$). These QI teams usually consisted of five members, depending on the organizational goal and improvement topic of the collaborative (Slaghuis et al., 2011). The different improvement topics may have influenced the composition of the teams, as they needed to have specific disciplines and knowledge in their team to develop adequate improvement initiatives.

Table 1: Data collection overview

	T1 measurement	T2 measurement	T1 and T2
N participating in QIC	Teams: 217 Team members: 775	Teams: 217 Teams not traceable: 17 Team members: 775	
N responding to survey	Teams: 138 Team members: 345	Teams: 86 Team members: 146	Teams: 49 Team members: 69
Average responding team member per team	3.05 (± 1.23)	2.21 (± 1.15)	1.87 (± 1.20)
Response rate team level	64%	40% (86/ 217)	23% (49/217)
Response rate individual level	45%	19% (146/ 775)	89% (69/775)

The same number of teams was invited to participate in the follow-up data collection of the “Care for Better” program (T2). They received questionnaires and were asked to indicate how much of the new work practice that the teams implemented, were spread to other parts of the organization and were sustained. Of the 217 teams, 86 teams participated (a team level response of 40%) and of the 775 questionnaires, 146 questionnaires were returned (an individual response of 19%). In total, approximately 2.21 team members per team responded to the follow-up data collection. A total of 69 team members completed the questionnaire at both T1 and T2 (representing 49 QI teams). In this study, the group that completed both T1 and T2 will be used in the analyses. Reasons for not participating were mostly related to organizational dynamics in the field, such as high employee turnover, and the fact that former team members had held other jobs within the organization (Slaghuis et al., 2011 Strating &

Nieboer, 2012). In the following flowchart the numbers for the first and second measurement are displayed.

In the following paragraph bivariate analyses and regression analyses are performed with the sample group (N= 69). In the multivariate linear regression analyses possible causal relationships will be tested, therefore it is important to only use the sample group which participated in both measurements (T1 and T2).

3.3 Measurement instruments

The questionnaires sent to the QI teams and team members consisted of validated instruments for measurement that have been tested in earlier studies. The internal consistencies (Cronbach's alpha coefficients) of the scales in this study are presented in Table 3 of Chapter four.

Dependent variables

Routinization is measured in the T2 questionnaire by the instrument developed by Slaghuis et al. (2011), which consists of a long and short version. For this study, the long version of three sub-scales including 16 items was used. An item of the first subscale, Routinization I, is: *"The new practice is regarded as the standard way to work."* The aim of this subscale is to measure to what extent the respondents know how to perform a new work practice. The second sub-scale focuses on variations in practice, and if these practices have led to new variations in the principles (ibid). An item of this subscale, Routinization II, is: *"We are accustomed to the work practice."* Finally, an item of the sub-scale Routinization III Feedback is: *"We often jointly discuss how to handle comments."* This sub-scale is concerned with the role assigned to feedback in the QI team. All questions had a five-point answer scale from "strongly disagree" to "strongly agree." Respondents also had the possibility to answer "I do not know." Higher scores indicate a higher level of routinization. Cronbach's alpha for these sub-scales ranged from 0.71 to 0.85. In this study only the total sum score of routinization is used. The reliability of this scale is determined using the Cronbach's alpha, which is 0.92.

Institutionalization is measured at T2 using the instrument constructed by Slaghuis et al. (2011). Again, the long version was used, which consists of four sub-scales and 24 items. The sub-scales are based on the four sub-dimensions of institutionalization, determined by Slaghuis et al. (2011). The first sub-scale, the Institutionalization of Skills, focuses on the question whether care professionals have acquired the skills that are needed to perform a new work practice. An example item of this subscale is: *"We regularly train all staff in the*

required skills for the new work practices.” The sub-scale Institutionalization of Documentation Materials focuses on the availability and use of documentation materials for a new work practice (ibid). An item of this sub-scale is: *“Documentation is used frequently in performing the new work practice.”* The third sub-scale, Institutionalization of Practical Materials, assesses the use and availability of practical materials, such as diagnostic test. It also assesses the use of organizational instruments such as work timetables. An example of a question from this sub-scale is: *“Responsibility for the materials is assigned to designated staff.”* The last sub-scale focuses on the formalized evaluation moments among the team members. An item of this sub-scale, Institutionalization of Team Reflection, is: *“New work practices are a regular topic in team meetings.”* The questions of the sub-scales had a five-point rating scale ranging from “strongly disagree” to “strongly agree” and respondents also had the possibility to answer “I do not know.” The Cronbach’s alphas of the subscales ranged from 0.81 to 0.92. In this study only the total sum score of institutionalization is used. The total scale has a Cronbach’s alpha of 0.94, which makes it a reliable scale.

Independent variables

Organizational support was assessed at T1 by items concerning the availability of time and the means and degree of encouragement from top management (RAND 2010). This scale consists of 12 questions that were answered on a seven-point scale, varying from *“strongly disagree”* to *“strongly agree”*. For instance, a question of this scale is: *“The improvement team had the resources needed for the project to succeed.”* The Cronbach’s alpha for this scale is 0.92, with higher scores indicating higher levels of organizational support.

Group culture was assessed at T1. The measurement instrument included four culture types, derived from the competing values framework (Shortell et al., 1995, Zammuto et al., 2000). The team members distributed 100 points across four sets of organizational statements (representing the four culture types) according to descriptions that best fit the organization. A scale for group culture was created from these questions, which consists of five items. For instance, a statement of this scale is: *“The setting is described as a personal organization. It is like a big family. People share personal experiences with each other.”* A scale for group culture was created by summing up all the points that were given to the group culture statements. The Cronbach’s alpha for this scale is 0.73, with higher scores indicating a more dominant group culture.

Leadership was assessed at T2, with nine items specifically focusing on leadership in quality improvement. These items are based on existing literature and measurement instruments

concerning leadership. To investigate psychometric properties, factor analysis and reliability analysis were conducted. The factor analysis showed that all nine items of the scale formed one theoretical construct. For instance, a question indicating leadership is: *“Our manager gives us the opportunity to further customize the new working method.”* The questions were answered on a five-point scale ranging from “strongly disagree” to “strongly agree.” Respondents also had the possibility to answer “I do not know.” The Cronbach’s alpha for this scale is 0.91, of which higher scores indicate a higher level of perceived support from middle and higher management.

Quality improvement commitment was assessed in the project leaders’ survey (T1) with eight items formulated by the European Foundation for Quality Management (Shortell et al., 1995). Rating was on a five-point scale ranging from “strongly disagree” to “strongly agree.” For instance, one statement is: *“The organization has an effective system for employees to make suggestions to management on how to improve quality.”* Higher scores indicate a higher level of quality improvement commitment. The Cronbach’s alpha of this scale is 0.82.

3.4 Data analyses

The measurement instruments used in this study were first analyzed on their reliability by performing reliability analyses. The results of these analyses indicated the internal consistency of each scale and whether or not some questions needed to be removed in order to increase the reliability of the scales (if Cronbach’s alpha coefficient is < 0.70). Then, descriptive analyses were performed to analyze the demographic characteristics of the respondents and to calculate the means and standard deviations of the study variables. Subsequently, correlation analyses were performed to investigate relationships between the dependent and independent variables. The quantitative part of this research concludes by performing multivariate linear regression analyses to examine which factors of the organizational context best predict the sustainability of new work practices. The regression analysis is, therefore, used to answer the third research question of this study.

Validity and Reliability

Even though this research addresses a healthcare issue, the results of this study may be applicable to other QIC’s in other sectors. However, there is a risk that the participating organizations in the “Care for Better” program had a low performance on quality and therefore participated to improve their quality. This may have created a selection of organizations that, at the start of the program, scored low on quality. Therefore, future

research will have to show to what extent the results of this study will be useful for other sectors.

Analyses

The analyses performed in this study consist of four steps. This paragraph will explain what each step entails and why specific decisions concerning the sample have been made.

The first step was made to examine if the data should be interpreted on a team level or a individual level. Because of the hierarchical structure of the data (individuals are contained within teams and collaboratives), a normal regression design would lead to estimation errors. Therefore, it was tested whether multi-level techniques should be performed. First of all, an empty model (0) was estimated, which reflected variations in the intercept. To assess the extent to which variance should be ascribed to the team or collaborative rather than to the individual level, collaboratives served as level-3 and teams as level-2 units (model 1). These analyses showed that multi-level analyses were not necessary since the model fit did not increase by adding the team and/or collaborative level in the model. This may partially be due to the low average number of team members per team and per collaborative. The difference between the 'empty' model and the team level model was not significant ($X^2_{diff}(1) = 1.8$), indicating that a multilevel regression analysis was not necessary. As a results, the data is interpreted on an individual level.

Secondly, this study examines causal effects between the independent and dependent variables. Therefore, the sample of 215 respondents was sorted in order to only show the data of the respondents who had completed both the T1 and T2 questionnaires. This led to a new sample size of $N = 69$. Missing values in this $N = 69$ population, on the different independent study variables, were replaced by the mean imputation method.

In step three, the possible effects of relevant background variables were assessed to determine whether these variables should be included as control variables in further analyses. The demographic variable "position in team." was recoded into three categories: managers, health policy/- quality staff and frontline professionals. In the recoded variable the smallest group (health policy/- quality staff) contained 13 respondents. Furthermore, correlation analyses between the independent and the dependent variables were performed. Variables that were not significantly associated with the dependent variables were excluded from the subsequent multivariate linear regression analyses. In addition, the variable "role in team" was excluded from the regression analyses because of its collinearity with the variable

“position recoded.” As a consequence, the variables “position recoded” and leadership were included in the multivariate linear regression analyses for routinization and institutionalization.

Finally, to gain insight in what makes an organization score higher or lower on sustainability, the same analyses were run again, but this time with a binary logistic regression. In this regression, routinization and institutionalization were divided between high and low scoring individuals, with 0 meaning below the median, and 1 meaning above or equal to the median. These analyses did not display substantially different results. Some correlations (e.g., between organizational support and institutionalization) were stronger in the larger sample group, but the results of the regression analyses were similar in both samples.

In the bivariate analyses, results were considered statistically significant when two-sided p -values were ≤ 0.05 . The multivariate regression analyses were considered statistically significant when one-sided p -values were ≤ 0.05 .

Ethical considerations

As the respondents of this study are staff members, and not patients, no approval from an ethics committee was needed. All personal identifiers have been removed in the questionnaires, so none of the respondents are identifiable.

4. Results

This chapter describes the results of the data analyses. In the first paragraph, the demographic characteristics of the respondents are discussed. The second paragraph examines which of these demographic characteristics can be classified as control variables. Furthermore, bivariate analyses are performed for the independent variables in relation to the dependent variables. The control and study variables with a significant association with the dependent variables are, in paragraph four, included in the multivariate linear regression analyses for routinization and institutionalization. In this paragraph the model created in the theoretical framework, is tested. The chapter closes by answering the third research question of this study.

4.1 Sample characteristics

The demographic characteristics of the sample are presented in Table 2. This table shows that respondents had a mean age of 51 and were mostly female (84%). About 48% worked more than 29 hours per week. The average hours per week spent working varied between 30 and 36 hours (48%). Of the respondents, 54% fulfilled the role of team member in the QI team and 46% were team leaders. The most common positions of the respondents within the team were management positions (35%) or nursing positions (30%). For the seven different QIC's, 12% of the respondents participated in Pressure Ulcer Care, 13% in the Eating and Drinking program, 7% in Prevention of Sexual Abuse, 19% in Client Autonomy, 17% in Medical Safety, 23% in Fall Prevention and 9% in Problem Behavior.

Table 2: Sample characteristics

Characteristics	T2
Number of respondents	N= 69
Gender:	Freq.
Male	11 (15.9%)
Female	58 (84.1%)
Age in years:	Mean 51.1 (SD 8.5) (min. 29 – max. 66)
Position:	Freq.
Medical assistant	2 (2.9%)
Nursing and care	21 (30.4%)
Social and community	4 (5.8%)
Medical/social specialist	2 (2.9%)
Management	24 (34.8%)
Health policy and quality staff	13 (18.8%)
Para-/perimedical professional	3 (4.3%)
Role in team:	Freq.
Project leader	24 (34.8%)
Team member	28 (40.6%)
Average work hours per week:	Freq.
8 to 15	2 (2.9%)
16 to 22	7 (10.1%)
23 to 29	19 (27.5%)
30 to 36	33 (47.8%)
37 hours or more	8 (11.6%)
Type of collaboration:	Freq.
Pressure Ulcer Care	8 (11.6%)
Eating and Drinking	9 (13.0%)
Prevention Sexual Abuse	5 (7.2%)
Client Autonomy	13 (18.8%)
Medication Safety	12 (17.4%)
Fall Prevention	16 (23.2%)
Prevention of (Social) Behavioral Problems	6 (8.7%)

4.2 Testing of demographic variables

Bivariate analyses were performed to investigate the association between the demographic variables and the dependent variables (see Table 3).

First of all, independent sample t-tests were conducted in order to study significant differences between the average scores of the characteristics of gender and their role in the improvement team in relation to the dependent variables. There were no significant differences in mean scores between males and females, with respect to routinization (males: $M= 3.39$, $SD= 0.24$; females: $M= 3.40$, $SD= 0.57$; $t= 0.4$, $p= 0.93$) and institutionalization (males: $M= 3.47$, $SD= 0.28$; females: $M= 3.39$, $SD= 0.61$; $t= 0.64$, $p= 0.53$). For routinization, no significant differences between the team leaders ($M= 3.57$, $SD= 0.44$) and other team members ($M= 3.37$, $SD= 0.60$; $t= 0.37$, $p= 0.71$) were found. On the contrary, their scores differed significantly with respect to institutionalization, that is, team leaders ($M= 3.67$, $SD= 0.46$) scored significantly higher than the other team members ($M= 3.24$, $SD= 0.62$; $t= 2.52$, $p= 0.02$).

One way analyses of variance (ANOVA) were conducted to explore differences between scores of the type of collaborative and the respondent's position on the one hand, and the dependent variables on the other. First of all, no significant differences were found for the different types of the QIC's and routinization ($F= 1.57$, $p= 0.17$) and institutionalization ($F= 1.19$, $p= 0.32$). Secondly, the position of employees in the team (e.g. nurses, medical assistants, managers) scored significantly differently on routinization ($F= 2.67$, $p= 0.02$), but not on institutionalization ($F= 1.65$, $p= 0.07$). Because the old variable included categories which only represented two or three respondents, which are too small in order to use them in the statistical analyses, a new variable was made. This variable divided the different positions into three groups: managers (35% of respondents), health policy and quality staff (19%) and frontline professionals (46%). This recoded variable was used in further analyses instead of the original position variable. The one-way analyses of variance for the recoded variable (named position recoded), showed significant differences between scores for the different positions. For instance, the test showed significant differences between scores for routinization ($F= 3.81$, $p= 0.03$) and for institutionalization ($F= 3.32$, $p= 0.04$). Managers scored significantly higher than frontline professionals (routinization: $M= 3.62$, $M= 3.30$; institutionalization $M= 3.60$, $M= 3.23$), with higher scores indicating a higher level of routinization or institutionalization. The differences in scores were not significant between frontline professionals and health policy/- quality staff, or between managers and health policy/- quality staff.

The variable “position recoded” and the role in the team variable, together, created a high level of collinearity in the model. According to Field (2009), high collinearity can create untrustworthy outcomes of the standard errors of the β coefficients (*SD B*), which make the sample less likely to represent the population. Second, high collinearity limits the size of the *R* and thus makes it harder to identify which predictor is individually more important for the model. These negative effects are more likely to occur when the variables correlate with each other. Because most of the managers are also the team leaders in the QI team (58%), the collinearity between the variables role in the team and the recode position variable is high (average VIF = 1.053). The variable “position recoded” gives more insight into the dynamic between the different positions and sustainability. Therefore, the variable “role in the team” is excluded from further analyses.

Finally, a Spearman correlation analysis was performed to assess the relationship between the number of working hours per week and the dependent variables, which showed no significant results for routinization ($r = 0.12$, $p = 0.34$) or for institutionalization ($r = 0.19$, $p = 0.11$). Finally, the relationship between age and the dependent variables was assessed (Pearson correlation coefficient), but no significant correlations were displayed with either routinization ($r = -0.10$; $p = 0.43$) or institutionalization ($r = -0.08$; $p = 0.51$).

Table 3: Testing of demographic variables

Independent variable	Routinization	Institutionalization
	t-test	t-test
Gender	0.93	0.53
Role in team	0.71	0.02*
	ANOVA	ANOVA
Type of collaboration	0.17	0.32
Position (7 categories)	0.02*	0.07
Position recoded		
- managers	0.03*	0.04*
- health policy and quality staff		
- frontline professionals		
	Spearman correlation	Spearman correlation
Work hours per week	0.34	0.11
	Pearson correlation	Pearson correlation
Age	0.43	0.51

Two- tailed: * $p < 0.05$; ** $p < 0.01$

To conclude, the results show that team leaders and team members scored differently with respect to their perceived level of the institutionalization of the new work practices. Also, differences in routinization and institutionalization were displayed between professionals with different positions in the teams. For example, managers scored higher on routinization and institutionalization than health policy/- quality staff and frontline professionals.

4. 3 Study variables characteristics

Descriptive statistics of the study variables are shown in Table 4. This table shows that the respondents scored high on both routinization ($M= 3.37$; $SD = 0.53$) and institutionalization ($M= 3.46$; $SD= 3.46$). This means that the respondents perceived a high level of both the concepts of sustainability. Furthermore, high scores were given in the questionnaires to the level of organizational support ($M= 4.04$; $SD= 0.92$), which indicates that the respondents felt supported by their management in performing the new work practices. High scores were also assigned to quality improvement commitment ($M= 3.86$; $SD= 0.62$) and leadership ($M= 3.47$; $SD= 0.62$). The high scores on leadership indicate that the respondents felt supported by their leaders in performing the new work practices. The high scores on quality improvement commitment indicate the dedication of the organization to quality improvement. Finally, the

results display variation in scores on group culture ($M= 29.2$; $SD= 13.7$), which may indicate that a group culture was not necessarily the dominant culture in some of the QI teams.

Table 4: Descriptive statistics on the study variables

	No. of items	Potential range	Actual range	Cronbach's alpha α	Mean (SD)
Dependent variables					
Routinization	16	1 - 5	1.06 - 4.31	0.92	3.37 (0.53)
Institutionalization	24	1 - 5	1.00 - 4.44	0.94	3.46 (1.7)
Independent variables					
Organizational support	12	1 - 7	1.58 – 7.00	0.92	4.04 (0.92)
Group culture	5	0 - 100	0 - 65	0.73	29.20 (13.7)
Leadership	9	1 - 5	1.00 - 4.78	0.91	3.47 (0.62)
Quality improvement commitment	8	1 - 5	2.38 – 5.00	0.82	3.86 (0.62)

4.4 Model testing

Correlation analyses were performed for all the study variables (Pearson correlation coefficient). This paragraph discusses the results of the analyses, which are presented in Table 5.

Table 5: Correlations between the study variables

	Routinization		Institutionalization	
Independent variables	<i>r</i>	<i>p</i>	<i>r</i>	<i>p</i>
Leadership	0.69	0.00	0.64	0.00
Organizational support	0.16	0.18	0.23	0.06
Group culture	0.11	0.39	0.19	0.13
Quality improvement commitment	-0.13	0.27	-0.07	0.58

The correlation analyses show that leadership is strongly related to routinization ($r= 0.69$, $p= 0.00$) and institutionalization ($r= 0.64$, $p= 0.00$), in the Care for Better program. This means that teams which are supported by their leaders in performing the new work practices score high on routinization and institutionalization. In other words, higher scores on leadership are associated with higher scores on routinization and institutionalization. Furthermore, organizational support showed a marginal relationship with institutionalization ($r= 0.23$, $p= 0.06$). This marginal effect can be a result of the high scores given by the respondents to organizational support ($M= 4.04$). Therefore, differences and significant influences are harder to notice. The marginal effect suggests that organizational support, in terms of money, time and resources, has a positive effect on institutionalization. All other variables showed no significant relationships with either routinization or institutionalization. These results indicate that a group culture and organizational commitment do not affect sustainability.

To test the relationship between the dependent and the independent variables, a multivariate linear regression model was used. Only the control and study variables that were significantly associated with the dependent variables ($p\leq 0.05$) were included in the regression analyses. To test the relationship between routinization and the position in a team, dummy variables were set up. This was done in order to incorporate the position variable in the regression analysis. The dummy variable “managers” is used as a reference category. In the multivariate linear regression analysis for routinization, step one consists of the control variables. In step two, leadership will be added into the model. In this way, the relationship between routinization, the dependent variable, and the position a team and leadership, the independent variables, are examined:

1).
$$E(Y1) = \beta_0 + \beta_1x_1 + \beta_2x_2 + \beta_3x_3 + \Sigma_i$$

E= expected

Y1 (routinization)

β (unstandardized regression coefficient)

β_0 (intercept)

x_1 (health policy and quality staff)

x_2 (frontline professionals)

x_3 (leadership)

Σ (error term)

Furthermore, the relationships between the position in a team and leadership, the independent variables; and institutionalization, the dependent variable, are examined:

2).
$$E(Y2) = \beta_0 + \beta_1x_1 + \beta_2x_2 + \beta_3x_3 + \Sigma_i$$

Y2 (institutionalization)

β (unstandardized regression coefficient)

β_0 (intercept)

x_1 (health policy and quality staff)

x_2 (frontline professionals)

x_3 (leadership)

Σ (error term)

In step one, the model examines the relationship between the control variable and institutionalization. In step two, leadership will be added to the model. The results of the models for routinization and institutionalization are presented in Tables 6 and 7.

Routinization

As indicated above, position in a team is recoded into different dummy variables representing the three different categories within the teams, namely managers, health policy/- quality staff and frontline professionals. For each dummy variable, the position is labeled as 1, and all other positions are labeled as 0. For example, the position of manager will be labeled as 1 in the “manager” dummy variable, and all other positions are labeled as 0 in this variable. The

dummy variables were then incorporated in the multivariate linear regression analysis (Table 6 and 7). Table 6 shows the results of the model for routinization.

Table 6: Multivariate regression analysis with routinization as dependent variable

Routinization	Step 1			Step 2		
	β	Std. Error	Std. B	β	Std. Error	Std. B
Position recoded ^a						
- Health policy and quality staff	-0.39	0.17	-0.29*	-0.17	0.13	-0.13
- Frontline professionals	-0.33	0.14	-0.32*	-0.20	0.10	-0.19
Leadership				0.55	0.08	0.65**
R^2	10%			51%		
F Change	4%			53%		
df	66			68		
Adj R^2	8%			48%		
ΔR^2	10%			40%		

^a position dummies for managers, health policy and quality staff and frontline professionals.

One-tailed: * $p \leq 0.05$; ** $p \leq 0.01$

Step 1 shows that health policy and quality staff have a significantly negative effect on routinization. These results indicate that health policy/- quality staff score lower on routinization than managers. Health policy/- quality staff are estimated to score -0.39 points lower than managers on routinization, holding all other variables fixed. Because of these lower scores, there is a negative relationship between routinization and the position of health policy and quality staff ($\beta = -0.29$, $p = 0.03$). For the frontline professionals, the results show that this group scores -0.33 points lower on routinization than managers, holding all other variables fixed ($B = -0.33$). Using only these position variables, 10% of the variance of routinization can be explained. The model becomes better in explaining the variance of routinization by adding leadership (F Change= 53%). As an example, step two of the model presents the effect of leadership on routinization. The results show that leadership strongly and positively affects routinization in this setting ($\beta = 0.55$, $p = 0.00$), in which a higher level of leadership is associated with a higher level of routinization. Remarkable is that the position in group loses its significant value in step 2 of the model. The overall results of the multivariate regression analysis indicate that leadership and the three positions in the QI team, explain approximately 40% of the variance of routinization.

Institutionalization

For institutionalization, a second multivariate linear regression analysis was performed (Table 7). The results indicate that the position in a team and leadership are significantly related to institutionalization.

Table 7: Hierarchical regression analysis with institutionalization as dependent variable

Institutionalization	Step 1			Step 2		
	β	Std. Error	Std. B	β	Std. Error	Std. B
Position recoded ^a						
- Health policy and quality staff	-0.12	0.19	-0.08	0.11	0.15	0.08
- Frontline professionals	-0.38	0.15	-0.33*	-0.24	0.12	-0.21*
Leadership				0.58	0.09	0.63**
R^2	9%			47%		
F Change	3%			46%		
df	66			65		
Adj R^2	6%			44%		
ΔR^2	9%			38%		

^a position dummies for managers, health policy and quality staff and frontline professionals.

* $p \leq 0.05$; ** $p \leq 0.01$

Step 1 of the model indicates that the position of health policy/- quality staff is not an unique predictor of institutionalization. The model further shows that respondents with a management position scored significantly higher on institutionalization than respondents who work as frontline professionals. The results indicate that the frontline professionals score - 0.38 points lower on institutionalization than the managers, holding all other variables fixed. The control variable explains only 9% of the variance in institutionalization. In the second step, these lower scores for frontline professionals are still significant ($\beta = -0.24$, $p = 0.05$). Furthermore, the second step of the model shows that leadership is strongly and positively associated with institutionalization ($\beta = 0.58$, $p = 0.00$), in which a higher level of leadership is associated with a higher level of institutionalization. The multivariate regression analysis shows that the total model explains 38% of the variance in institutionalization.

To conclude, the findings from the multivariate regression analyses highlight the importance of the role of leadership for sustaining new work practices in long-term care. These findings support the third hypothesis of this study: “Active leadership has a positive enhancing effect on sustainability of new work practices.” On the other hand, the results show that the other hypotheses, that is, the positive effect of organizational support, group culture, and quality improvement commitment on sustainability, are not supported by the data. These results answer the third research question: “To what extent did the aspects of the inner organizational context affect the sustainability of the new work practices in the “Care for Better” program?”. The only aspect of the inner organizational context that influenced the sustainability of new work practices within the “Care for Better” program is leadership. Which practical recommendations can be derived from these results are discussed in the following chapter.

5. Discussion and conclusion

This chapter discusses the aspects of the inner organizational context and their effect on sustaining new work practices within the Dutch long-term quality improvement program: “Care for Better”. The chapter findings are further discussed by addressing the limitations of this study. Furthermore, the lessons that can be drawn from the findings of the statistical analysis concerning the inner organizational context in relation to sustainability, are discussed. The chapter closes with a final conclusion.

5.1 Discussion of the findings

While many studies have examined the effectiveness of QIC’s by studying the results of implementation efforts in the short term (Schouten et al., 2008), less research has been conducted to determine what happens beyond that point (Slaghuis et al., 2011; Cramm et al., 2012; Makai et al., 2012). Using the four concepts of the inner organizational context by Cretin et al. (2004), sustainability can be investigated. In the following paragraphs, the empirical findings of this study are compared to the findings from literature and previous research.

Organizational support

The first aspect of the inner context is organizational support. The data did not reveal any evidence of the assumption that organizational support has an effect on either two aspects of sustainability: routinization and institutionalization. These findings suggest that organizational support, which has been shown to positively contribute to the success of implementing new work practices (Mills & Weeks, 2004 Øvretveit et al., 2002 Yin, 1981), does not have the same positive effects on sustaining these new work practices. So, success factors of the implementation phase may be different from those of the sustainability phase. For organizational support in specific, these differences can mainly be explained by the fact that the concept is sensitive to organizational changes. For example, organizational support in terms of time and money can be given to the QI team in the first year, but for the sustainability phase this kind of support no longer exists due to, among others, reaching the limit of budgets, changes in the organization’s policy, or new performance indicators.

Group culture

The literature suggests that a group culture is a predictor of process implementation (Lemmens et al., 2009) and contributes to creating effective teams (Lin et al., 2005). In line with these studies it is expected that a high level of group culture would have a positive effect on the sustainability of new work practices. However, this study shows that this hypothesis

was not supported by the data; no significant relationship between group culture and sustainability has been found in this setting. So, group culture is the second aspect of the inner organizational context, which has a positive effect during the implementation phase, but not during the sustainability phase. Although group culture does not seem to have any effect on the level of sustainability of new work practices, it is still useful to get more detailed insight into the influence of culture. In our study 80% of the QI teams reported to have a dominant group culture, therefore we did not investigate what effect a hierarchical culture or a balance between different types of cultures have on sustainability. However, the statistical analyses showed that a group culture may not have been as dominant ($M= 29.20$, potential range 1-100). Detailed insights into the effects of the types of culture may provide managers and team leaders with useful tools to influence these effects of culture in order to enhance the sustainability of new work practices.

Leadership

The central finding of this study is based on the third aspect of the inner organizational context: leadership. A significant effect of leadership on both routinization and institutionalization was found. Although most studies agree about the importance of its role for the sustainability of new work practices (Damanpour & Gopalakrishnan, 1998; Schreirer, 2005), a significant effect of “active” leadership is debatable. The level of active leadership that is described in this study is based on the extent to which the direct supervisor provided the team with resources, facilities, support and time to perform the new work practices and get used to them. To avoid confusion, in this study active leadership consists of the actions of one person, in contrast to organizational support, which is created by the actions of a number of persons within the organization on a higher organizational level. In this setting, leadership has been proven to be of utmost importance to sustain new work practices. Organizations and team leaders should be aware of the effects of leadership, and should contribute to maintaining an active form of leadership that provides support, time and resources for the team members to carry out new ways of working. Overall, these findings indicate that leadership plays an important role in the sustainability phase.

Quality improvement commitment

The last aspect of the inner organizational context is the level of quality improvement commitment. The literature suggested that if organizations actively involve their teams in quality improvement activities, these professionals will be committed to implementing changes and their perception of effectiveness will be positive (Lin et al., 2005). Again, these findings are related to the implementation of new work practices and not on sustaining them.

Our study found no positive relationship between QIC and sustainability. These results may be caused by the high scores assigned to sustainability and QIC, which make differences more difficult to notice.

Position in team

This study found a significant relationship between managers and frontline professionals with respect to the perceived level of routinization and institutionalization. The respondents with a management position scored higher on institutionalization and routinization than frontline professionals. This may suggest a “gap” in the perceived level of sustainability between both groups. This is an important finding for the management level of organizations. In addition, it might be caused by the fact that demands and needs from frontline professionals to sustain their new working practices are (unknowingly) not met by the managers, who should facilitate this by creating supporting conditions at an organizational level. The “gap” can also be caused by the fact that managers make different trade-offs in the short term. For instance, their discussions are based on other interests, such as finance and achieving performance indicators, while frontline professionals are more focused on the actual care process. Therefore, frontline professionals base their considerations on the quality of care and what facilitates them in order to deliver this care. The distance between policy and practices (management level vs. frontline professionals) in healthcare organizations causes problems. For example, problems can be caused by the fact that that managers often fulfill a dual role of maintaining a distance while at the same time they have to continue being involved in the work practices of their employees (Stoopendaal, 2009). They are responsible for the care delivered to the client, while the (autonomous) frontline professionals deliver this care. Managers live in a different “world” with a different mental framework than frontline professionals do (ibid). Combining both worlds is a challenging task. Knowledge of the strategies which managers can develop to deal with this dilemma are, for example, studied by Stoopendaal (2009).

5.3 Limitations

Some limitations of this study should be considered when interpreting the findings. First, causality relationships cannot be inferred due to the uncontrolled longitudinal design of this study. Second, this study does not include a control group, and the included study group was not randomly selected. Third, the study population may be affected by a positive selection bias. For example, it is likely that only team members with a successful QI intervention completed the follow-up questionnaire. Teams that were not successful may have had the idea that they have less important and incomplete information to share and may not want to

spend any more time on a failed project by completing the questionnaires. This assumption can be supported by the graphs of the variables which are skewed to the right, therefore making it harder to explain variations in the dependent variable. Also, the organizational environment, which changes over time due to reorganization, policy changes, and the turnover of team members, may have affected the study. In addition, this study's focus on the inner organizational contexts, the effect of the outer organizational contexts, and their direct and indirect influences on sustaining new work practices, was not taken into account. Finally, the overall moderate response at T1 and T2 limits the generalizability of the study, although the commonality of the respondents within the seven different themes of the "Care for Better" program express similar experiences with the sustainability of new work practices. The moderate response, and the rather low number of respondents per team (1.87) may have led to some selection bias. Reasons for not participating were mostly related to organizational dynamics in the field, such as high employee turnover, and the fact that former team members had held other jobs within the organization.

Despite the afore-mentioned limitations, the study provides insight in the aspects of the inner organizational context that affect the sustainability of new work practices within an organization.

5.4 Practical recommendations

This paragraph answers the fourth research question: "What practical recommendations can be derived from the empirical findings?" Despite the limitations of the study, the empirical finding of the "gap" between managers and frontline professionals concerning their perceived level of sustainability can be useful for future healthcare quality improvement projects. Whereas most studies focus on the implementation of new work practices, sustaining these work practices is equally important. This study, and other studies, found that leadership plays an important role in sustaining new work practices (Damanpour & Gopalakrishnan, 1998; Schreier, 2005). Usually, during the set up of quality improvement collaborative, more attention is given to what aspect of the care delivery should be improved and how this should be implemented, instead of focusing on how these improvements should be sustained. The practical side is thoroughly discussed, while the more theoretical side in the form of work schedules, budgets and staffing are less frequently the centre of discussion. Managers and frontline professionals judge the level of sustainability from a different point of view based on different interests, occupations and commitments. Discussing both views at the start of a new project is helpful in order to create mutual understanding between both worlds and, in the long term, enhance the sustainability of new work practices.

5.5 Conclusion

This study found that the aspects of the inner organizational context do not all (positively) influence the sustainability of new work practices. The results of this study do provide support for the theoretically proposed positive associations between leadership and the sustainability of new work practices. Active leadership, which involves giving team members the time, resources and support to perform new work practices, enhances the sustainability of new work practices. Acknowledging the strong positive influence of active leadership on sustainability may help future quality improvement programs in sustaining new work practices in the participating organizations. For the other three aspects of the inner organizational context: organizational support, group culture and quality improvement commitment, no positive influence on sustainability was found. Furthermore, this study found a significant difference in perceptions of the level of routinization and institutionalization between frontline professionals and managers. How this dilemma can be handled is an interesting question for future studies. To conclude, this study shows that the positive influence of the aspects of the inner organizational context in the implementation phase are not the same as those for the sustainability phase.

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Appendix 1: Questions of the scales

Routinization Scale
Routinization I
<ol style="list-style-type: none">1. <i>The new practice is regarded as the standard way to work.</i>2. <i>The new work practice is easy to describe.</i>3. <i>All colleagues involved in the new work practice are knowledgeable about it.</i>4. <i>Everybody has developed their own way to perform the new work practice properly.</i>5. <i>The work practice has replaced the old routine once and for all.</i>6. <i>Everyone knows exactly for which tasks and responsibilities they are accountable.</i>7. <i>Despite the usual exceptions in practice it is not hard to perform the work practice as prescribed.</i>8. <i>Performing the new routine always goes swimmingly well.</i>
Routinization II
<ol style="list-style-type: none">9. <i>There is little opportunity to adapt the work practice to specific situations.</i>10. <i>We are accustomed to the work practice.</i>11. <i>We automatically work according to the new work practice.</i>12. <i>We have adjusted our old habits to the new work practice.</i>
Routinization III: feedback
<ol style="list-style-type: none">13. <i>If my work is not up to standard, my colleagues will comment on this.</i>14. <i>We all keep an eye on potential flaws in the performance.</i>15. <i>Problems in performing the work practice are usually brought up by our team leader.</i>16. <i>We often jointly discuss how to handle comments.</i>

Institutionalization Scale
Institutionalization of Skills
<ol style="list-style-type: none"> 1. <i>Work practice knowledge and skills are listed in the job requirements in recruitment ads.</i> 2. <i>Newly recruited staff is thoroughly introduced to the work practice.</i> 3. <i>We regularly train all staff in the required skills.</i> 4. <i>Occasionally we set up activities to refresh important skills and knowledge.</i> 5. <i>Important knowledge and skills are addressed in performance interviews.</i> 6. <i>Knowledge and skills for the work practice are listed in our job descriptions.</i> 7. <i>In performance interviews goals are set for work practice skill development.</i>
Institutionalization of Documentation Materials
<ol style="list-style-type: none"> 8. <i>All staff is informed that work practice documentation is available.</i> 9. <i>Documentation is accessible to everybody.</i> 10. <i>Work practice documentation is always kept in a special place.</i> 11. <i>Documentation is easily replaced when lost.</i> 12. <i>Documentation is used frequently.</i> 13. <i>Work practice documentation is regularly updated following new developments in (long-term) care.</i> 14. <i>Documentation is used for updating training.</i>
Institutionalization of Practical Materials
<ol style="list-style-type: none"> 15. <i>Materials are almost always available.</i> 16. <i>Materials are never in the same place.</i> 17. <i>Materials are well-stocked when needed.</i> 18. <i>We always order materials too late.</i> 19. <i>Responsibility for the materials is assigned to designated staff.</i>
Institutionalization of Team Reflection
<ol style="list-style-type: none"> 20. <i>The new work practice is a regular topic in team meetings.</i> 21. <i>In our team meetings we choose our improvement goals together.</i> 22. <i>The performance of the work practice is evaluated every now and then (for example once per 3 or 6 months).</i> 23. <i>In our team meetings we analyze if we have achieved our improvement goals.</i> 24. <i>Team decisions about the work practice are recorded and made available in minutes or otherwise.</i>

Organizational support

The Board of directors:

1. *has shown interest in the work of our improvement team*
2. *has been like a coach to our improvement team.*
3. *has motivated the employees of the involved departments*
4. *has provided our team with useful feedback.*
5. *was approachable for criticism.*
6. *has given our team the time to reflect on our work*
7. *has given our team the time that we needed in order to test the new work practices .*
8. *I'm satisfied with the way in which the Board of Directors has dealt with our improve team*
9. *The improvement team got enough time for the implementation of the project.*
10. *The improvement team had sufficient human resources for the implementation of the project.*
11. *The improvement team had the resources needed for the project to succeed.*
12. *The improvement team had the skills that were needed to let the project succeed.*

Group culture

1. *The setting is described as a personal organization. It is like a big family. People share personal experiences with each other.*
2. *The management in this organization is warm and caring. They stimulate the personal development of employees and act as a coach/ mentor.*
3. *Faith and tradition are key aspects in this organization. Involvement of employees and management is important.*
4. *The organization emphasizes the value of staff and the importance of training. Cohesion and morals are important.*
5. *In the setting, everybody is appreciated equally. It is important that everyone who works in the organization is treated as equally as possible.*

Leadership

My supervisor:

1. *has sufficient knowledge of the consequences of the new work practices.*
2. *helps figuring out how we should handle the consequences.*
3. *uses measurement (indicators) to measure the consequences of the new work practices.*
4. *asks rarely about the new work practice.*
5. *creates good conditions for working according to the new method.*
6. *does not defend our interests in consults with the (upper) management.*
7. *gives us the opportunity to further customize the new method.*
8. *helps to think of ways of how to improve the new work practices.*
9. *gives us compliments about how we now deliver the care, according to the new work practices.*

Quality improvement commitment

1. *Employees are involved in the development of quality improvement plans.*
2. *Within the organization, all the employees get the space and time to work on quality improvement.*
3. *Employees have the possibility to address work related problems when quality criteria are not pursued.*
4. *Employees are supported when they take the necessary measures to improve quality.*
5. *Within the organization, (group) meetings are organized to improve quality.*
6. *Within the organization, one or more employees are trained in identifying and implementing quality improvement possibilities.*
7. *Employees receive the necessary education and training in order to improve their skills and the care delivery.*
8. *Employees receive recognition for improving quality.*