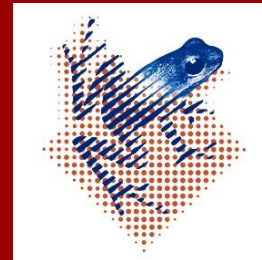


Changes in the field of activity of elderly care physicians

A study of the influence of readiness to change, subjective norm, perceived behavioral control, commitment and organizational culture on the successfulness of change

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ABSTRACT

Introduction

This research is about the changing field of activity of elderly care physicians. The theory of planned behavior is used to study the changes in the field of activity. Successfulness of change is operationalized as the level of modernity in the field of activity. The relationships between readiness to change, subjective norm and perceived behavioral control and successfulness of change are investigated. Also, the role of organizational culture, commitment to the association for elderly care physicians Verenso and commitment to postgraduate medical education are researched. In order to accomplish the objective of this study, the research questions to be answered are: How do characteristics of elderly care physicians influence the level of modernity in the field of activity, and what are the roles of organizational culture, commitment to postgraduate medical education and commitment to Verenso in the changing field of activity?

Methods

A questionnaire has been distributed among elderly care physicians and elderly care residents in the Netherlands in order to obtain the necessary data. Regression analyses have been done to analyze the data.

Results

The linear regression analysis shows that readiness to change, subjective norm and perceived behavioral control have a positive significant relationship with the level of modernity. When the variables of the theory of planned behavior are taken together, subjective norm is the only variable which, according to the multiple regression analysis, has a significant positive relationship with level of modernity. This means that subjective norm is of relative higher importance in explaining the successfulness of change than are readiness to change and perceived behavioral control. To increase the level of modernity in the field of activity all three variables should be taken into account whereby special attention should be given to subjective norm. Further

more, a strong clan culture enhances the relationship between readiness to change and the level of modernity. Moreover, a mediating effect of subjective norm on the relationship between the independent variable commitment to Verenso and the dependent variable level of modernity has been found.

Discussion

The main strength of this study is that it is among the first to provide a thorough overview of the influences on changes in the field of activity of elderly care physicians. The theory driven assessment adds support for Ajzen's (1991) theory of planned behavior, and can be useful for postgraduate medical education and Verenso, since they are currently busy with changing the field of activity of elderly care physicians.

1 INTRODUCTION

The Netherlands with a population of 16.5 million inhabitants has approximately 350 nursing homes. An average nursing home has around 150-200 beds and 20 day-treatment places with separate wards for psychogeriatric patients, physically ill patients and geriatric rehabilitation. In order to improve the level of care for all these patients, a medical specialism called 'elderly care physician' does exist in the Netherlands. The Netherlands became the first country in the world where nursing homes employed specially trained physicians on a permanent basis. This gave a boost to the scientific underpinning of the profession and training centers to become elderly care physician have been started in Amsterdam (1989), Nijmegen (1995), Leiden (1997) and Groningen (2008).

Elderly care physician is a rather new medical profession and a fast growing profession because of the aging population in the Netherlands. This implies a lot of changes. The field of activity as well as postgraduate medical education changed in the past, is still changing and will be changing in the future (Wijngaarden van, 2011). The University Medical Centre of Groningen (UMCG) wants these changes to be studied. This thesis is about the changes in the field of activity of elderly care physicians.

In this chapter, the relevance of the study is discussed and the aim of the research is explained. After that, a description of the changes in the field of activity of the elderly care physician is provided. Lastly, the research question is presented.

1.1 RELEVANCE OF THIS STUDY

Despite the boost to the scientific underpinning of the profession of the elderly care physician in the past, not much research has been done to the changes in the field of activity. Because of the aging population and because most elderly people will live in their own homes independently for a longer period of time (NVVA, 2003), the work and tasks of elderly care physicians have to change in order to be able to provide care for elderly people in the future. It is not clear however whether or not there is already a shift from a

'traditional' to a 'modern' method of working and thinking at this moment, and what causes and influences change. In order to bring about change towards a 'modern' method of working in the field of activity, postgraduate medical education is, among others, used as a change instrument (H. Geertsema, personal communication, November 28, 2011). However, it is unclear whether or not postgraduate medical education is a suitable change instrument to realize change in the field of activity.

In order to acquire a better understanding of the changes in the field of activity of elderly care physicians and elderly care residents, the changes need to be analyzed. Moreover, to obtain a complete view of the changes the role of organizational culture, postgraduate medical education and commitment to the association for elderly care physicians Verenso need to be researched. In the next chapters, by 'field of activity of elderly care physicians', the field of activity of elderly care physicians and elderly care residents is meant.

1.2 DESCRIPTION OF THE PROBLEM AND OBJECTIVE OF THIS STUDY

As stated above, the field of activity of elderly care physicians is changing. However, it is not clear yet whether or not the changes are already implemented and what factors are of influence on the changes in the field of activity. Also, it is not clear which role postgraduate medical education, commitment to Verenso and organizational culture play in the changes in the field of activity. Since the UMCG is involved in training residents to become elderly care physicians, the UMCG wants the field of activity and the role of postgraduate medical education to be studied, in order to achieve a better fit between postgraduate medical education and the field of activity.

The objective of this study is to research which characteristics of elderly care physicians and elderly care residents are of influence on the successfulness of the changes in the field of activity, and lead to a 'modern' method of working. Also, the role of commitment to postgraduate medical education, commitment to Verenso and organizational cul-

ture will be investigated. In this way, the results of this study can be used to clarify the influences on the changes in the field of activity. The knowledge about the changes in the field of activity could be used to innovate postgraduate medical education. Consequently, a better fit between the education and practice in the field could be achieved and new elderly care physicians will be better prepared to work independently in the field of activity. On top of that, this study provides insight in whether or not the prescribed changes are implemented by now.

Before researching which characteristics of elderly care physicians and elderly care residents are of influence on the successfulness of the changes in the field of activity, and what the role of commitment to postgraduate medical education, commitment to Verenso and organizational culture is, the changes in the field of activity need to be analyzed. In the next paragraph the changes in the field of activity are described.

1.3 DESCRIPTION OF THE CHANGES IN THE FIELD OF ACTIVITY OF ELDERLY CARE PHYSICIANS

The field of activity of elderly care physicians is changing since the start of the profession in 1990 (Wijngaarden van, 2011). Before 1990, physicians were already working in nursing homes treating elderly patients. However, these doctors were mostly general practitioners. There were no specific regulations and no scientific traditions in working with elderly people (Hoek, 2011). Therefore, the start of postgraduate medical education to become 'nursing home physician' in 1989 was a big step towards regulation and scientific underpinning of the profession. Nine years later, in 1998, postgraduate medical education to become 'nursing home physician' merged with postgraduate medical education to become social geriatrician. Though, this new postgraduate medical education did not contribute enough to change the field of activity into a more scientific and regulated field of activity (Hoek, 2011). So, more change was needed to professionalize the field of activity.

In order to discover what are the most prevalent changes in the field of activity at the moment, interviews were done and a thorough literature study was accomplished in this study. Nine interviews were done: six of them with elderly care physicians working in the field, an interview with the

chair of SOON (Samenwerkende Opleidingen tot specialist Ouderengeneeskunde), an interview with the chair of Verenso, and an interview with the coordinator of postgraduate medical education in Amsterdam. All interviews took approximately one hour and were held at the workplaces of the interviewees. Aim of the interviews was to obtain an answer to the question: 'what are the most significant changes in the field of activity, according to you?'. This question was among others used to describe the perspectives and opinions of the interviewees (Baarda, De Goede & Teunissen, 2005). It was also aimed at the construction of a scheme of 'traditional' tasks and 'modern' tasks of elderly care physicians. Furthermore, the interviewer had some subjects for conversation in mind, but no specific questions to ask. In this way the most important subjects of conversation came spontaneously from the interviewees themselves. So, the qualitative research was done by open interviews (Baarda, De Goede & Teunissen, 2005). Next to the interviews, documents and websites were used to gather information about the current situation in the field of activity of elderly care physicians, and about the role of postgraduate medical education in the changes in the field of activity.

In the next sections, the findings about the current situation in the field of activity are presented and the future situation is discussed.

1.3.1 CURRENT SITUATION IN THE FIELD OF ACTIVITY OF ELDERLY CARE PHYSICIANS

Health care in the Netherlands is changing. For instance health care fees, insurances and informal care changed in the previous years. Also, long term care and elderly care were changed by the government in order to improve the quality of care. These changes will continue through the next years. Because elderly care is a part of health care in general, the field of activity of elderly care physicians is changing and will continue to change. As a consequence, elderly care physicians work in a turbulent and changing environment.

According to Verenso (www.verenso.nl), the work area of elderly care physicians covers nursing homes and residential homes, primary and mental health care (outpatient and clinical elderly care), and hospitals (transfer wards, outpatient wards, consulting). Most elderly care physicians work

in one of these areas, usually a nursing home (F. Hoek, personal communication, September 15, 2011; E.J. Heyting, personal communication, August 9, 2011). The present study found that most elderly care physicians work in a nursing home, an elderly home, hospice and/or small-scale residences for elderly. However, according to Verenso, there seems to be a shift from these workplaces to a broader field of activity. This was also found in current study: 113 out of 192 elderly care physicians and residents reported working in several workplaces. Also 'new' functions have evolved, for instance for elderly people living at home, the elderly care physician has a consulting function towards the general practitioner (NVVA, 2003; J. Roosendaal, personal communication, August 9, 2011; J.D. de Jong, personal communication, August 16, 2011; E.J. Heyting, personal communication, August 9, 2011). Though this is still not common practice (Koenen et al., 2010). In current study only 20 out of 192 elderly care physicians and residents reported involvement in a consulting function, 35% of the elderly care physicians and residents are occasionally consulted for medical specialists in hospitals. In a nursing home, an elderly care physician is responsible for approximately 100 patients (J.D. de Jong, personal communication, August 16, 2011). This responsibility is usually not shared with other medical disciplines and there seems to be little cooperation with for instance general practitioners and clinical geriatricians (CBOG, 2011). In the present study this was also found. So, the elderly care physician performs most medical tasks by his- or herself. Though, it seems that elderly care physicians do much more than only medical tasks. According to Konings (2011), most elderly care physicians seem to be spending too much time with non-medical tasks. The elderly care physician seems to be a manager, secretary and medical specialist all in the same time. This is probably caused by the lack of certified personnel in nursing homes (Verenso & SOON, 2011). This results in less efficiency on the work floor (G.M. Draijer, personal communication, December 5, 2011; Hoek, 2011). Inefficiency can also be seen in the lack of electronic patient databases (Verenso & SOON, 2011). Electronic patient databases seem to be not so common in the field of activity of the elderly care physician. In the present study, only 70% of the elderly care physicians and residents work with electronic patient databases. Also, scientific work is not com-

mon. At the moment it seems that there is still a vast amount of elderly care physicians who do not practice evidence based medicine (Hoek, 2011). In current study, a percentage of 16% of elderly care physicians and residents participates in scientific research.

The current situation in the field of activity of elderly care physicians presented above seems to exist in this state for years. According to De Jong (personal communication, August 16, 2011) and Geertsema (personal communication, November 28, 2011), the culture in which most elderly care physicians work is a rather conservative one. Change is not a priority and it seems that most people want to stick to the present situation.

1.3.2 TOWARDS CHANGE AND INNOVATION

Despite the fact that change seems in general not a priority to elderly care physicians, change is needed. It is needed to make the profession of elderly care physician sustainable and more efficient in the future. The need for change was recognized by Verenso. The association started to provide directives and notions about the methods of work and about the future of the elderly care physician (www.verenso.nl).

One of the changes in the field of activity is a tendency towards people with high need for care living in homes for elderly, instead of nursing homes. These people need involvement of an elderly care physician, by which there is a shift from working in a nursing home towards working in other settings as well, for instance a health centre or a general practice (F. Hoek, personal communication, September 15, 2011; Heerema et al., 2010; NVVA, 2007).

In order to realize this shift, elderly care physicians need to cooperate with other medical disciplines more (CBOG, 2011). In 2007 a pilot study about the implementation of a geriatric consulting hour in general medical practice was started, to improve the cooperation between elderly care physicians and general practitioners. The elderly care physician and general practitioner cooperated in care for geriatric patients. This pilot study suggests that there is high degree of satisfaction in all people involved, there are less unnecessary referrals, and there is more knowledge about the (im)possibilities of various disciplines in elderly care (Koenen et al., 2010). A higher level of cooperation with

general practitioners and medical specialists will probably continue in the future.

Besides the shift in workplaces and cooperation, the content of the tasks will probably change too. State Secretary and elderly care physician Mrs. Veldhuijzen van Zanten-Hyllner states that the focus in the field of activity of the elderly care physician has to change towards medical tasks (Konings, 2011). So focus should be more on fundamental development of tasks of the field of activity (Konings, 2011; Verenso & SOON, 2011). This can for instance be realized by delegation of routine tasks to nurse practitioners. Also, elderly care physicians will perform more complex medical actions in the future, because routine actions are taken over by the nurse practitioner and because patients increasingly suffer from complex diseases (these people would previously have died, because they could not be cured). Result will be a more efficient way of working and time management, which makes it possible to see more patients per day (J.D. de Jong, personal communication, August 16, 2011; J. Roosendaal, personal communication, August 9, 2011). An overview of the 'traditional' way of working and thinking and the 'modern' way of working and thinking in the field of activity of elderly care physicians discussed above is provided in Table 1.

In order to shift from the 'traditional' way of working and thinking to a 'modern' way of working and thinking in the field of activity, innovation is needed. Many innovations in health care are implemented by changes in education (Jippes et al., 2010). Innovation in postgraduate medical education can be used to innovate the healthcare system in the Netherlands (Bont de et al., 2008; KNMG, 2002; MBOG, 2006; VWS, 2003). In elderly care, postgraduate medical education is used as a change instrument for innovation as well. For example, residents learn not only medi-

cal tasks but also management skills and receive training in how to run a doctor's practice. Also, residents learn about the need for change, motivation and being proactive in the field of activity (H. Geertsema, personal communication, November 28, 2011). The creation of a climate that encourages experimentation and motivation to take responsibility for identifying the need for change and implementing it, as is done by postgraduate medical education, is very important in change and is one of the main tenets of emergent change (Burnes, 2009).

1.4 RESEARCH QUESTION

As can be read in the foregoing paragraph, there is a shift towards a new way of working in the field of activity of elderly care physicians. It is not clear yet to what extent the changes are already implemented. Also, it is not clear what factors are of influence on the abovementioned changes in the field of activity. This needs to be investigated. Therefore, in order to accomplish the objective of this study stated in paragraph 1.2, the research questions to be answered are:

How do characteristics of elderly care physicians influence the level of modernity in the field of activity, and what are the roles of organizational culture, commitment to postgraduate medical education and commitment to Verenso in the changing field of activity?

In the next chapter, a brief overview of organizational change literature is provided and the variables considering the research question are described. Moreover, a conceptual model is presented.

Traditional characteristic

Elderly care physician works in one workplace, usually a nursing home.
Elderly care physician does not or barely cooperate with other (medical) disciplines.
Elderly care physician is involved in management, secretary, teamwork and delegation of tasks.

Modern characteristic

Elderly care physician works in several workplaces, for instance a health centre or general practice.
Elderly care physician cooperates with other (medical) disciplines.
Focus of tasks of the elderly care physician is on fundamental development of tasks of the field of activity.
Elderly care physicians perform complex medical actions, routine tasks are done by the nurse practitioner.

Table 1 Traditional and modern characteristics of the field of activity of elderly care physicians

2 THEORY

In this chapter, an overview of organizational change literature is provided and applied to the field of activity of elderly care physicians. The variables concerning the research question are described, and a conceptual model is presented.

2.1 ORGANIZATIONAL CHANGE

Change can be defined as the transformation of an individual or system from one state to another, a process that may be induced by internal or external factors, or both (Swanwick, 2007). Much has been written about the many approaches and responses to change (Gilley, Godek & Gilley, 2009). Though there are multiple approaches to organizational change and many ways of categorizing them, there is common agreement on the division of two dominant ones; the planned and emergent approaches to organizational change (e.g. Burnes, 2009; Cummings & Worley, 2001; Kanter et al., 1992; Stace & Dunphy, 2001; Weick, 2000). In the 1940's, Kurt Lewin stated the term planned change, to distinguish change that was started and planned by an organization (Burnes, 2009). It is pre-planned and predictable. On the other hand, emergent change is seen as an open-ended ongoing and unpredictable process aimed at responding to a changing environment (Mintzberg, 1987). Change might come about by accident or by impulse or it might be forced on an organization (Burnes, 2009). According to Beer and Nohria (2000) about 70% of all change initiatives fail. Keeping this in mind, a sound understanding of the subject of change will form the basis of making right decisions. Hence, in the next section the changes in the field of activity of elderly care physician will be elaborated on.

2.1.1 CHANGE IN THE FIELD OF ACTIVITY OF ELDERLY CARE PHYSICIANS

The need for change in the field of activity was recognized by Verenso and therefore by the elderly care physicians themselves. The elderly care physicians start implementing changes in the organizations they work for. In this way the organization does not set up the changes, but the em-

ployees working for the organization (the elderly care physicians) start changing. Therefore, change can be seen as a bottom-up process. Moreover, the changes are a response to a changing environment (e.g. the aging population in the Netherlands, more patients and less time, elderly people live longer and live at home instead of nursing homes). Also, change is induced by external factors, such as governmental policy, budget cuts and competition of other medical disciplines. Internal factors play a role as well; since the profession needs to attract new students to follow postgraduate medical education they need to innovate to become attractive. The changes in the field of activity are ongoing and started since the profession was legislated. Given the above facts, the changes being researched in this thesis can be categorized as emergent changes (Burnes, 2009).

2.1.2 SUCCESS FACTORS CONCERNING EMERGENT CHANGE

Proponents of emergent change reject the idea of generally applicable rules to change an organization, but they do believe that there are factors that can either promote or obstruct the success of a change process. One important factor is, in order to generate change, that individuals in the field of activity need to change their thoughts and intentions, and ultimately change their behaviors (Ajzen, 1991; Schein, 1987; Jones et al, 2005). Therefore, the current research focuses on the changes in thoughts and behavior of the elderly care physicians and elderly care residents. Gilley et al. (2009) emphasize that understanding individual behavior leads to understanding organizational behavior, and in the end to successful change. To understand human behavior in all its complexity is rather difficult. To come to an understanding of individual behavior, intentions and changes in behavior, Ajzen's (1991) theory of planned behavior has been used to analyze various aspects of change (Armitage & Conner, 2001). It is for instance used in workplaces to understand technology adoption (Rei et al, 2002), in workplaces to understand worker intent towards employee involvement (Dawkins & Frass, 2005), and in organizational change context (Jimmieson et al, 2008).

In the next paragraph, the theory of planned behavior is presented and applied to the current change research. In addition, the variables concerning this study are described.

2.2 THEORY OF PLANNED BEHAVIOR, AND VARIABLES CONCERNING THIS STUDY

The theory of planned behavior is designed to predict and explain human behavior in specific contexts. The theory suggests that the decision to engage in a particular behavior is the result of a rational process. The most proximal determinant of behavior is intentions. In the theory of planned behavior, intentions are defined as the indication of an individual's willingness to perform a given behavior. The stronger the intention to engage in a behavior, the more likely should be its performance. Intentions and behavior are proposed to be a result of three determinants: attitude, subjective norm, and perceived behavioral control (Ajzen, 1991). Figure 1 presents the theory of planned behavior.

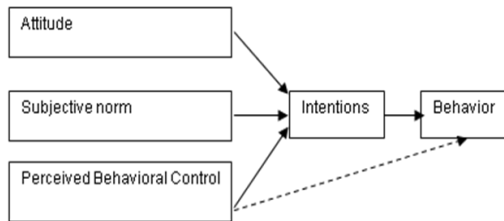


Figure 1 Theory of planned behavior (Ajzen, 1991)

The theory of planned behavior can thus be used to predict and explain human behavior. Hence, in this study the theory is used to explain and analyze the changes in the field of activity of elderly care physicians. Since the variables attitude, subjective norms and perceived behavioral control are of influence on behavior and therefore to the success of the changes, they will be investigated as variables in this

research. In the following sections these variables are discussed. The behavior that is influenced by these variables, the so called dependent variable, will be discussed first.

2.2.1 DEPENDENT VARIABLE: LEVEL OF MODERNITY

The dependent variable in this study is the successfulness of change. Successfulness is operationalized as the level of modernity in the field of activity. Modern characteristics of the way of working and thinking (see Table 1) are indicators of modernity, and hence indicators of successfulness. Traditional characteristics (see Table 1) are indicators of a traditional way of working and are therefore indicators of unsuccessfulness. Since the level of modernity is about ways of working and thus about behavior, the present study will focus on behavior as dependent variable. Intentions, which lead to behavior according to the theory of planned behavior, are not explicitly measured in the current research. The dependent variable will be influenced by the variables discussed next.

2.2.2 ATTITUDE

As can be seen in Figure 1, the first variable in the model of the theory of planned behavior is the individual's attitude, conceptualized as the favorable or unfavorable evaluation of performing the behavior in question (Ajzen, 1991). According to Holt et al. (2007), readiness to change is an attitude (in organizational change). Readiness to change reflects the extent to which people are cognitively and emotionally inclined to accept and adopt a plan to change. Therefore, in the current study attitude is considered as readiness to change. Readiness to change is the extent to which employees believe that the changes are likely to have positive or negative implications for themselves and the organization (Armenakis, Harris & Mossholder, 1993). Readiness to change can be seen as a multifaceted concept that contains an emotional dimension of change, a cognitive dimension of change and an intentional dimension of change (Bouckennooghe, Devos & Van den Broeck, 2009). According to many authors (e.g. Armenakis et al., 1993; Armenakis, Harris & Field, 1999; Kotter, 1995; Mento, Jones & Dirndorfer, 2002), readiness to change is one of the most important factors involved in employees' support for change. When elderly care physicians and residents believe that the changes have positive implications for themselves

or the field of activity, then it will probably result in support for the changes and ultimately lead to a change in behavior and therefore to a higher level of modernity in the field of activity. So, expected is that the more the elderly care physicians and residents are ready to change, the higher the level of modernity in the field of activity is. The foregoing leads to the following hypothesis:

Hypothesis 1: A higher level of readiness to change leads to a higher level of modernity

2.2.3 SUBJECTIVE NORM

The second variable in the model of the theory of planned behavior is subjective norm. Subjective norm refers to the perceived social pressure to perform or not to perform the behavior of interest (Ajzen, 1991). It predicts intentions to change because social influence creates pressure among employees to act in change supportive or change resistant ways (Jimmieson et al., 2008). It is often suggested that change agents should use social influence and social networks that exist within an organization or group of employees as a tool for creating alliances that influence one another to create shared meanings during change (Greiner & Schein, 1988). Jippes et al. (2010) found that social networks play an important role in the diffusion and distribution of innovations. Especially in health care, social networks seem to be critical for the sustainability of innovations and change (Sibthorpe, Glasgow & Wells, 2005). Coleman, Katz and Menzen (1966) studied the diffusion of a new prescription drug among physicians, which can probably be compared to the diffusion of a new way of working among physicians. They found that the more contacts a physician was involved in or the stronger the ties a physician had, the more likely he or she was prescribing the drug. According to West et al. (1999), social networks of physicians tend to be informal, horizontal networks. Horizontal networks are effective for spreading peer influence and supporting for the construction and reframing of meaning (Rogers, 1995; West et al., 1999). So, especially in health care a higher perceived social pressure (subjective norm) to change will probably lead to more intentions to change and thus to a higher level of modernity in the field of activity. This leads to the second hypothesis:

Hypothesis 2: A higher level of subjective norm leads to a higher level of modernity

2.2.4 PERCEIVED BEHAVIORAL CONTROL

Perceived behavioral control is the third variable mentioned in the theory of planned behavior. It refers to the perceived ease or difficulty of performing the behavior. Perceived behavioral control is assumed to reflect past experience as well as anticipated obstruction, obstacles and opportunities. It can be used directly to predict behavioral accomplishment (Ajzen, 1991). In the current study this means that the more behavioral control an elderly care physician or resident perceives in his or her daily work, the more he or she is feeling able to perform the behavior that is needed to generate change. This will probably result in a higher level of modernity. Derived from the foregoing, the third hypothesis is formulated:

Hypothesis 3: A higher level of perceived behavioral control leads to a higher level of modernity

2.3 MODERATING AND MEDIATING EFFECTS

The field of activity of elderly care physicians is situated in a rather complex environment, as can be read in the former chapter. Hence, besides the abovementioned variables of the theory of planned behavior, it is suggested that other variables influence the level of modernity as well. These variables are discussed below.

2.3.1 ORGANIZATIONAL CULTURE

Organizational culture can be described as the set of shared values, beliefs and norms that influence the way people think, feel and behave towards each other (George & Jones, 2005). Culture plays an important role in organizations, especially when it comes to change (Allaire & Firsirotu, 1984; Brown, 1995). According to Pettigrew (1997), organizational processes are embedded in an organizations' context. Culture forms an important part of this context. In order to change organizational processes, having a contributing culture is of great importance (Stacey, 2003). Likewise, Cummings and Worley (2001) recognize that culture can influence the pace of change.

The measurement of organizational culture has focused on values, since values are central to understanding an organizations' culture (Ott, 1989). There are several models used to study organizational culture. One that is frequently used in change management is the Competing Values Framework. Quinn & Rohrbaugh (1981) used values to develop this framework. The Competing Values Framework explores demands within an organization on two axes. Organizations differ in terms of whether they value flexibility or control in organizational structuring, and they differ in terms of whether they value an internal focus or an external focus to the environment (Jones et al., 2005). Together these two dimensions form four quadrants (see Figure 2). The four quadrants define the core values on which judgments about organizations are made. Each quadrant has been given a label by Cameron and Quinn (2005) to distinguish its most notable characteristics: clan, adhocracy, market and hierarchy.

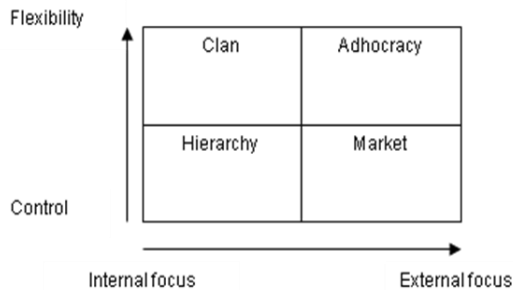


Figure 2 The competing values framework

A clan culture aims to foster high levels of cohesion and morale among employees by means of teamwork, training and development, open communication and participative decision making. There is a high sense of 'we-ness'. It is a friendly workplace where people share a lot of themselves. On the other end of the internal/external focus axis, the adhocracy culture is found. It places emphasis on innovation and development. This is achieved by adaptability, creativity and flexibility, visionary communication and adaptable decision making. It is a dynamic, entrepreneurial and creative workplace where people take risks. The opposite of

adhocracy culture is a hierarchy culture. A hierarchy culture strives for stability and control, attained through formal information management, precise communication and data based decision making. Procedures govern what people do. Lastly, a market culture possessing a rational goal orientation promotes efficiency and productivity. This is gained through goal-setting and planning, instructional communication and centralized decision making. It is a result oriented workplace with demanding leaders (Cameron & Quinn, 2005).

Zammoto and O'Connor (1992) found that organizational cultures influence change outcomes. For instance, organizations with flexible structures and supportive climates were more supporting to successful implementation of new technologies than inflexible and controlling organizations. Since the culture in which most elderly care physicians work is considered as a rather conservative one where change is not a priority (J.D. de Jong, personal communication, August 16, 2011; H. Geertsema, personal communication, November 28, 2011) it is of great interest to analyze the impact of organizational culture on the changes studied in this research.

Since culture plays an important role in organizations (Al-laire & Firsrotu, 1984; Brown, 1995) and is embedded in an organization (Pettigrew, 1997), culture probably influences all aspects of an organization and its employees. Culture influences work attitudes and behaviors of employees that could increase organizational effectiveness (Jones, 1983; Smircich, 1983). In this study, it is therefore proposed that organizational culture influences the relationships between the variables in the model of the theory of planned behavior and the level of modernity. It is proposed that a clan culture will attribute most to the effect of the relationships between the variables of the theory of planned behavior and the level of modernity, because this culture type values flexibility and a dynamic nature, which is important in generating change (Jones et al., 2005). In organizations with a flexible structure there is more room for creativity and creation of new knowledge, which in turn leads to an easier respond to changes and new situations (Nonaka, 1991; Burnes, 2009). Furthermore, the internal focus of the clan culture will probably contribute to change, because in clan cultures workers are encouraged to voice suggestions regarding the improvement of their work and this could contribute to change (Cameron & Quinn, 2005). On top of

that, in clan cultures focus is on participation and commitment, which is important in change (Armenakis et al., 1993; Kotter, 1995). It is therefore proposed that the presence of a clan culture amplifies the positive effects between the variables described in the former paragraph and the level of modernity. In other words, a high level of clan culture could have a moderating effect on the relationships between the variables readiness to change, subjective norm, perceived behavioral control and the dependent variable. This leads to the following hypotheses:

Hypothesis 4a: A higher level of clan culture amplifies the expected positive effect of readiness to change on the level of modernity.

Hypothesis 4b: A higher level of clan culture amplifies the expected positive effect of subjective norm on the level of modernity.

Hypothesis 4c: A higher level of clan culture amplifies the expected positive effect of perceived behavioral control on the level of modernity.

2.3.2 COMMITMENT TO VERENSO

In most change processes, commitment to the goals of an organization is needed for the change to be a success. It is especially important in emergent change (Kotter & Schlesinger, 2008). Since the changes in the field of activity of elderly care physicians are emergent changes, commitment probably plays a role in the current research. According to Mathews and Shepherd (2002), 'Committed employees have a strong belief in and acceptance of the organization's goals and values, show a willingness to exert considerable effort on behalf of the organization, and have a strong desire to maintain membership with the organization'. Zangaro (2001) explained that a person who is committed to an organization is dedicated and has a strong belief in the organizations' goals and values. Considering Verenso as the change initiator and therefore as an organization having change goals, commitment to Verenso could influence the changes researched in this study.

Since committed employees have a strong belief in the goals of the organization and show a willingness to exert effort toward the goals, this probably leads to readiness to change, because readiness to change reflects the extent to which people are cognitively and emotionally inclined to

accept and adopt a plan or goal (Armenakis, Harris & Mosholder, 1993). Also, in psychological studies of commitment was found that committed people are more ready and willing to comply with requests for a certain behavior (Cialdini, 1994). This was also found in organizational settings by Herscovitch and Meyer (2002). Madsen, Miller and John (2005) found as well that employees perceived higher readiness levels when they felt committed to their organizations. This finding supports other literature (Eby et al., 2000; Weber & Weber, 2001) that has indirectly inferred this relationship. In the present study it is therefore possible that elderly care physicians who are committed to the goals of Verenso are more ready to change and work in a more modern way. So, it is assumed that a higher level of commitment to Verenso leads to a higher readiness to change, which leads to a higher level of modernity. This brings the following hypothesis:

Hypothesis 5a: A higher level of commitment to Verenso leads to a higher level of readiness to change, which leads to a higher level of modernity.

It is assumed that commitment to Verenso not only leads to a higher level of readiness to change, but also to a higher level of subjective norm, which then leads to a higher level of modernity. Madsen et al. (2005), and Hanpachern (1997) found that strong social relationships between employees are an important factor in change. In the current study it is reasonable that elderly care physicians who are committed to Verenso and its change initiative, will 'spread the word' among colleague elderly care physicians and are enthusiastic and inspirational about the changes, so subjective norm will be higher. And a higher subjective norm will probably lead to a higher level of modernity. This leads to the following hypothesis:

Hypothesis 5b: A higher level of commitment to Verenso leads to a higher level of subjective norm, which leads to a higher level of modernity.

2.3.3 COMMITMENT TO THE EDUCATION

In the same way as commitment to Verenso, commitment to postgraduate medical education can be of influence on the changes in the field of activity of elderly care physicians.

Elderly care physicians who are committed to postgraduate medical education will probably have strong intentions to work in a modern way and are thus more ready to change. Since postgraduate medical education is used as a change instrument, commitment to postgraduate medical education can lead to higher readiness to change, which leads to a higher level of modernity. This brings the following hypothesis:

Hypothesis 6a: A higher level of commitment to postgraduate medical education leads to a higher level of readiness to change, which leads to a higher level of modernity.

Commitment to education could also lead to subjective norm, since committed elderly care physicians and residents are probably enthusiastic and inspirational about the changes, therefore subjective norm will be higher. So, it is assumed that a higher level of commitment to postgraduate medical education leads to higher level of subjective norm, which leads to a higher level of modernity. This leads to the last hypothesis:

Hypothesis 6b: A higher level of commitment to postgraduate medical education leads to a higher level of subjective norm, which leads to a higher level of modernity.

2.4 CONCEPTUAL MODEL

Figure 3 summarizes the dependent, independent, moderating and mediating variables. Readiness to change, subjective norm and perceived behavioral control are expected to positively relate to the level of modernity, as predicted by the theory of planned behavior. Clan culture will probably influence the relationship between all variables of the theory of planned behavior and the level of modernity. Higher levels of commitment to Verenso and commitment to postgraduate medical education will probably lead to higher levels of readiness to change and subjective norm, which leads to a high level of modernity. In this way, readiness to change and subjective norm have a mediating role. Commitment to Verenso, commitment to postgraduate medical education and perceived behavioral control are independent variables. For an overview of all variables and their relationships as they are researched in the current study, consider Figure 3.

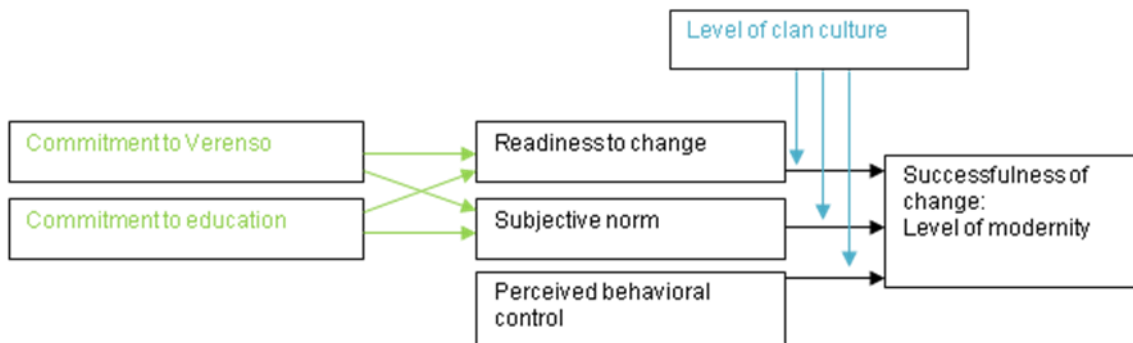


Figure 3 Conceptual model

3 METHODS

The previous chapter introduced the theoretical background of this study. In this chapter focus is on the research methods used in order to test the hypotheses and answer the research questions. The first part of this chapter will elaborate on the research design. The second part of this chapter deals with the techniques used for data collection. In the third part the measures are investigated. The final part provides an explanation of the analyses used in this study.

3.1 RESEARCH DESIGN

To test the hypotheses presented in the former chapter, a quantitative study of the changes in the field of activity of elderly care physicians was carried out. The data were gathered by a questionnaire. The questionnaire consisted of questions from available questionnaires (for readiness to change and organizational culture), questions derived from examples of questions (for subjective norm and perceived behavior control), and questions derived from interviews and literature study about the work performed by elderly care physicians, commitment to Verenso and commitment to postgraduate medical education.

3.2 DATA COLLECTION

In this study the use of a questionnaire has been chosen for several reasons. The use of questionnaires enables to collect data from a large percentage of the target groups: elderly care physicians and elderly care residents. Furthermore, their responses have been collected and processed in a standardized way, which improves the objectivity and simplifies analyzing the data. Altogether, questionnaires make it possible to test the variables and relations in the conceptual model statistically (Cooper & Schindler, 2006). An internet link to the questionnaire was published in Verenso's newsletter and was sent by email to all elderly care physicians who are member of Verenso. A personal email containing an internet link to the questionnaire was sent to all elderly care residents in the Netherlands. A total of 194

questionnaires were received; 103 were filled in by elderly care physicians and 91 by residents. The response rate of elderly care physicians was 13%. The response rate of residents was 62%. Of all respondents 151 were female and 43 were male. Respondents were between 25 and 66 years old, with a mean of 42 years.

The questionnaire was used to gather data about readiness to change, subjective norm, perceived behavior control, organizational culture, commitment to Verenso, commitment to postgraduate medical education, and the level of modernity in the field of activity.

The questionnaire consisted of 6 parts. The first part contained introductory questions in order to make the sample characteristics clear and to make a distinction between elderly care physicians and elderly care residents. Further, it contained questions about commitment to Verenso and commitment to the education. The second, third and fourth part consisted of questions about the level of modernity in the field of activity and perceived behavioral control. The fifth part of the questionnaire measured readiness to change and subjective norm. The last part of the questionnaire contained statements about organizational culture for elderly care physicians, and questions that measured perceived behavioral control of the residents. The questions in the questionnaires have all been translated into Dutch. Confidentiality and anonymousness were promised to the respondents. Participants signed an informed consent. A more in depth explanation of the content of the questions and the used questionnaires follows in the next paragraph.

3.3 MEASURES

In this paragraph an in depth explanation is provided for the measurement of the variables. Subsequently, the validity and reliability of the questions in the current study will be defined.

3.3.1 READINESS TO CHANGE

In order to measure readiness to change, the Organizational Change Questionnaire – Climate of Change, Processes,

and Readiness (OCQ-C, P, R) of Bouckennooghe, Devos and Van den Broeck (2009) was used. Bouckennooghe, Devos and Van den Broeck (2009) conducted three independent studies to examine the validity and reliability of the OCQ-C, P, R. They found evidence for construct validity provided by factor analyses for the Dutch version of the OCQ-C, P, R. They also demonstrated adequate convergent validity, discriminant validity, and reliability. The findings of their studies suggest that the Dutch OCQ-C, P, R meets the standards of a psychometrically sound measurement instrument (American Psychological Association, 1995; Hinkin, 1998).

In the current study, elderly care physicians and residents were asked to rate to what extent they agree or not with the statements, using a 5-point Likert scale: “strongly disagree”, “disagree”, “neutral”, “agree”, and “strongly agree”.

Examples of questions are:

- I experience the change as a positive process.
- The change will improve work.
- I am willing to make a significant contribution to the change.

3.3.2 SUBJECTIVE NORM

The questions for measuring subjective norm are formulated according to examples for construction of a theory of planned behavior questionnaire provided by Ajzen (2002). Elderly care physicians and residents were asked to rate to what extent they agree or not with the statements, using a 5-point Likert scale: “strongly disagree”, “disagree”, “neutral”, “agree”, and “strongly agree”. Examples of questions are:

- My colleagues think the changes are very important.
- Most colleagues work in a modern way.
- It is expected of me that I change my way of working.

3.3.3 PERCEIVED BEHAVIORAL CONTROL

The questions for measuring perceived behavioral control are as well formulated according to examples for construction of a theory of planned behavior questionnaire provided by Ajzen (2002). Elderly care physicians and residents were asked to rate to what extent they agree or not with the statements, using a 5-point Likert scale: “strongly disagree”, “disagree”, “neutral”, “agree”, and “strongly agree”. Examples of questions are:

- I believe the organization supports me.
- In my organization I am in control.
- My supervisor enables me to work according to the vision of the education.

3.3.4 ORGANIZATIONAL CULTURE

In order to diagnose the organizational cultures of the organizations the elderly care physicians work for, the Organizational Culture Assessment Instrument (OCAI) of Cameron and Quinn (2006) was used. Cameron and Freeman (1991) tested the validity of the OCAI. Strong evidence for concurrent validity was found. Quinn and Spreitzer (1991) also found evidence for two additional kinds of validity: convergent and discriminant validity. Tests for these two types of validity were conducted using a multitrait-multimethod analysis and a multidimensional scaling analysis. Further evidence of validity of the OCAI was produced by Zammuto and Krakower (1991). Quinn and Spreitzer (1991) found evidence of reliability of the OCAI. Coefficients were .74 for clan culture, .79 for adhocracy culture, .73 for hierarchy culture and .71 for market culture. Yeung, Brockbank and Ulrich (1991) also found evidence of reliability in their study of 10300 executives in 1064 businesses. Several additional studies can be cited (for example, Peterson et al., 1991) that found sufficient evidence regarding reliability of the OCAI.

In this study, elderly care physicians were asked to rate their organization as it is now by dividing 100 points among four alternatives. An example of alternatives (to measure dominant characteristics of an organizations’ culture) is:

- The organization is a very personal place. It is like an extended family. People seem to share a lot of themselves.
- The organization is a very dynamic and entrepreneurial place. People are willing to stick their necks out and take risks.
- The organization is very results-oriented. A major concern is getting the job done. People are very competitive and achievement oriented.
- The organization is a very controlled and structured place. Formal procedures generally govern what people do.

3.3.5 COMMITMENT TO VERENSO

To measure the level of commitment to Verenso, respondents were asked whether or not they were intensively involved with Verenso in the past five years. If the answer was 'yes', more questions were asked about the tasks they performed for Verenso. Elderly care physicians and residents were asked to rate to what extent they agree or not with the statements, using a 5-point Likert scale: "strongly disagree", "disagree", "neutral", "agree", and "strongly agree".

Examples of questions are:

- I always read policies of Verenso.
- I always attend regional meetings of Verenso.
- I am involved in Verenso as committee member.

3.3.6 COMMITMENT TO POSTGRADUATE MEDICAL EDUCATION

To measure the commitment to postgraduate medical education, elderly care physicians were asked whether or not they were intensively involved in the education in the past five years. This measurement was used in the analyses. Besides, in order to get a more in-depth view of the commitment, respondents who answered 'yes' to the first question were asked about the tasks they performed for the education. Elderly care physicians were asked to rate to what extent they agree or not with the statements, using a 5-point Likert scale: "strongly disagree", "disagree", "neutral", "agree", and "strongly agree". Examples of questions are:

- I am involved in education as supervisor.
- I am involved in education as coordinator.
- I am involved in education as visiting lecturer.

3.3.7 LEVEL OF MODERNITY

Interviews and literature study were used to analyze what a 'traditional' and a 'modern' way of working is. From this analysis items were derived to measure the level of modernity in the field of activity. Questions were asked about cooperation with other disciplines, workplaces, and activities of elderly care physicians. The questions were answered by elderly care physicians and residents. Examples of questions are:

- I regularly visit patients at their homes.
- I read scientific papers.
- I coach nurses.

3.3.8 VALIDITY AND RELIABILITY IN THE CURRENT STUDY

Factor analyses were used to analyze construct validity and to see whether subscales exist within the scales used. Factor analyses were conducted on the variables of the theory of planned behavior, clan culture, commitment to Verenso and commitment to postgraduate medical education, and on the dependent variable. Factors were extracted and loadings were evaluated.

In order to test the reliability of the variables, Cronbach's alpha was calculated. It appeared that all variables had sufficient alpha values, however 12 items scores below .1 on the corrected item-total correlation. These items appeared to have low loadings in the factor analyses as well and were therefore removed. Table 2 shows the outcomes of the reliability analyses with the data after removing the 12 items.

Variable	Number of items	Cronbach's alpha
Readiness to change	19	.95
Subjective norm	6	.71
Perceived behavioral control	13	.83
Level of modernity	38	.85
Clan culture	6	.91
Commitment to education	4	.82
Commitment to Verenso	22	.86

Table 2 Outcome of reliability analyses

3.4 DATA ANALYSIS

To execute the analyses of this study the statistical program SPSS 16.0 was used. Before the data was analyzed, the items that were formulated reversely were reversed. To test the significance of the hypotheses an alpha level of 0.05 was used.

3.4.1 TESTING FOR EXTREME VALUES

To be able to make legitimate statements the data were tested for extreme values and outliers. Each variable was tested for outliers with box plots. It appeared that some respondents were considered as outliers at several va-

riables. The answers of these respondents were evaluated, and two of them seemed to have answered without reading the questions because they gave the same answer to all questions. These two respondents were removed. Consequently, the answers of 192 respondents were used for the analyses in this study. Of these 192 respondents, 102 were elderly care physicians and 90 were residents.

3.4.2 THE ANALYSES

After testing for extreme values and outliers and removal of two respondents, analyses on the data were performed. This section explains which analyses were used in the present study.

First, Pearson's correlation was used to execute a correlation analysis. For the discrete dichotomous variable commitment to education the point-biserial correlation coefficient was calculated and then a Pearson's correlation was used.

Secondly, regression analyses were conducted to define the explained variance and the regression equations. Before a regression analysis could be executed, four assumptions have to be controlled for: 1) independent sample; 2) linearity; 3) homoscedasticity; 4) normal distribution (Siero, Huisman & Kiers, 2005; Field, 2005). Generally speaking the independence (the first assumption) is guaranteed by taking a random sample. Within the context of this research this independence has been checked in the research design. The second assumption is linearity. This was tested by residual plots. The third assumption is homoscedasticity. This was tested by means of residual plots as well. The final assumption is normality. This was tested by QQ-plots. Simple and multiple regression analyses were conducted. The simple regression analysis was used to investigate the causal relationships between the variables of the theory of planned behavior and the dependent variable. To be more precise: the causal relationship between readiness to change and level of modernity, the causal relationship between subjective norm and level of modernity and the causal relationship between perceived behavioral control and level of modernity. Multiple regression analysis was used to investigate the effect of the three variables on the level of modernity.

Thirdly, the possibility of moderating effects of clan culture was investigated by moderator (hierarchical regression)

analyses. Before the analyses were done, all variables were centralized. This was done to minimize the possible multicollinearity. The analyses were used to test hypotheses 4a, 4b and 4c.

Lastly, to test hypotheses 5ab and 6ab, mediation effects of readiness to change and subjective norm were investigated. Four conditions have to be required to establish mediation (Baron & Kenny, 1986): 1) the independent variable and the proposed mediating variable must be significantly related; 2) the independent and dependent variables must be related; 3) the mediator and dependent variable must be related; 4) the relation between the independent variable and dependent variable should be weaker or not significant after this relation has been controlled for the mediator. The 'indirect' SPSS macro as described by Preacher and Hayes (2004) was used to examine the four conditions of simple mediation. Also, the 95 % confidence interval of the mediated effect was examined with bootstrapping procedures. The results from the abovementioned analyses are presented in the next chapter.

4 RESULTS

The previous chapter consisted of an elaboration on the research methods used in the current study. In this chapter the results are presented. The first part of this chapter contains the results of the correlation analysis. In the second part, the results of the regression analyses are presented. The third part is about the results of the moderation analyses and the fourth part contains the results of the mediation analyses.

4.1 CORRELATION ANALYSIS

Table 3 shows the mean, standard deviation and correlations between the variables in this study. In this paragraph the outcomes of the correlation analyses of the variables are presented.

From the table can be concluded that significant correlations exist between the variables of the theory of planned behavior and the dependent variable. The variables readiness to change ($r = .16, p < .05$), subjective norm ($r = .24, p < .01$), and perceived behavioral control ($r = .17, p < .01$) all have a significant positive relationship with the dependent variable level of modernity. Moreover, the variables readiness to change, subjective norm and perceived

behavioral control do not correlate highly (and their Cronbach's alpha's are high, see Table 2), therefore it is presumed that these variables are different from one another, and there is no multicollinearity. The moderating variable clan culture correlates with subjective norm ($r = .21, p < .05$) and perceived behavioral control ($r = .61, p < .01$), however not with readiness to change.

Lastly, a significant correlation can be seen between commitment to Verenso and readiness to change ($r = .23, p < .01$), and with commitment to Verenso and subjective norm ($r = .27, p < .01$), however not with perceived behavioral control. Also, commitment to Verenso correlates with the dependent variable ($r = .37, p < .01$). No significant correlations can be found for commitment to education.

Variable	M	SD	1	2	3	4	5	6	7
1. Readiness to change ^a	3.58	.53	-						
2. Subjective norm ^a	3.22	.49	.27**	-					
3. Perceived behavioral control ^a	3.47	.68	-.02	.26**	-				
4. Commitment to education ^b	1.57	.50	-.09	-.11	-.10	-			
5. Commitment to Verenso ^a	2.27	.44	.23**	.27**	.04	-.04	-		
6. Clan culture ^b	27.79	16.48	.01	.21*	.61**	-.15	-.03	-	
7. Level of modernity ^a	3.05	.45	.16*	.24**	.17**	-.12	.37**	.00	-

Table 3 Results for Correlation Analysis

** $p < .01$. * $p < .05$ (1-tailed).

^a $N = 192$

^b $N = 102$

4.2 REGRESSION ANALYSES

In order to be able to test hypotheses 1, 2, and 3 linear regression analyses (see Table 4) and multiple regression analysis (see Table 5) have been performed. The assumptions for regression analyses are being met. The first hypothesis predicts that a higher level of readiness to change leads to a higher level of modernity. As can be seen in Table 4, a significant positive relationship has been found between readiness to change and level of modernity ($\beta = 0.16$, $SE = .06$, $t = 2.23$, $p = .027$). In other words, the first hypothesis is accepted. The second hypothesis predicts that a higher level of subjective norm leads to a higher level of

modernity. A significant positive relationship has been found between subjective norm and level of modernity ($\beta = 0.24$, $SE = .07$, $t = 3.45$, $p = .001$), see Table 4. So, the second hypothesis is also accepted. The third hypothesis predicts that a higher level of perceived behavioral control leads to a higher level of modernity. As can be seen in Table 4, a significant positive relationship has been found between perceived behavioral control and level of modernity ($\beta = 0.17$, $SE = .05$, $t = 2.37$, $p = .019$). This means that the third hypothesis is accepted as well.

	B	SE	β	t	R ²	Adjusted R ²
Readiness to change	.16	.06	.16*	2.23	.03	.02
Subjective norm	.22	.07	.24**	3.45	.06	.05
Perceived behavioral control	.11	.05	.17*	2.37	.03	.02

Table 4 Results for simple regression analyses with level of modernity as dependent variable
** $p < .01$. * $p < .05$.

In order to find out which variable is the most important predictor for the dependent variable level of modernity, a multiple regression analysis has been done. The analysis includes the variables of the theory of planned behavior and the dependent variable. As can be seen in Table 5, the model explains 8% of the variance in the level of modernity. During the linear regression analyses, the relationships between the variables of the theory of planned behavior and the dependent

variable were significant. However, when looking at Table 5, only subjective norm shows a significant contribution to the model during the multiple regression analysis ($\beta = 0.18$, $SE = .07$, $t = 2.40$, $p = .018$). And a trend was found for perceived behavioral control ($\beta = 0.13$, $SE = .05$, $t = 1.73$, $p = .085$). So, for increase in the dependent variable level of modernity the most influential variable within this research is subjective norm.

	B	SE	β	t
Constant	1.87	.30		6.33
Readiness to change	.10	.06	.11	1.57
Subjective norm	.17	.07	.18*	2.40
Perceived behavioral control	.08	.05	.13	1.73

Table 5 Results for multiple regression analysis
 $R^2 = .08$ R^2 adjusted = .07, $F(3, 191) = 5,69$ $p = .001$
** $p < .01$. * $p < .05$.

4.3 MODERATION ANALYSES

Three hypotheses have been tested about the moderating effects of a high level of clan culture (see Chapter 2). To test these hypotheses, the variables have been centralized and hierarchical regression analyses have been performed (see Appendix, Table 1a, 1b, 1c). A significant interaction effect between readiness to change and clan culture was found ($\beta = 0.20$, $SE = .00$, $t = 2.01$, $p = .047$). So, there seems to be a moderating effect of clan culture on the relationship between readiness to change and level of modernity. Hypothesis 4a: A higher level of clan culture amplifies the expected positive effect of readiness to change on the level of modernity, is therefore accepted.

No significant interaction effects were found to be able to accept hypotheses 4b and 4c. Therefore, these hypotheses are rejected.

In order to study the kind of interaction effect between readiness to change and clan culture, simple slopes analyses (see Appendix, Table 2) have been performed (Aiken & West, 1991). The simple slopes analyses show a positive relationship between readiness to change and level of modernity, if there is a strong (+ 1 SD) clan culture ($\beta = 0.46$, $SE = .10$, $t = 2.99$, $p = .003$). This means that a strong clan culture enhances the relationship between readiness to change and level of modernity. When clan culture increases with 1 standard deviation, readiness to change increases between .10 and .51 standard deviations (see Appendix, Figure 1). On the other hand, no significant relationship has been found for a weak (- 1 SD) clan culture ($\beta = .09$, $SE = .08$, $t = 1.16$, ns.).

4.4 MEDIATION ANALYSES

Mediation analyses have been performed to test hypotheses 5ab and 6ab. A significant mediating effect of subjective norm on the relationship between commitment to Verenso and level of modernity was found. The significance tests of the hypothesized indirect relation between commitment to Verenso and level of modernity through subjective norm are displayed in Table 6. Table 6 presents significance tests for the different paths within the simple mediation model of Baron and Kenny (1986). Commitment to Verenso was significantly related to subjective norm (Path 1). Subjective norm was significantly related to level of modernity (Path

2). And commitment to Verenso was significantly related to level of modernity (Path 3). This relationship was also significant after controlling for subjective norm (Path 4).

Path	B	SE	t
1	.30**	.08	3.85
2	.14*	.06	2.25
3	.38**	.07	5.40
4	.34**	.07	4.65

Table 6 Results for mediation analyses of subjective norm on the relationship between commitment to Verenso and level of modernity
** $p < .01$. * $p < .05$.

Bootstrapped 95% confidence intervals around the indirect effect did not contain zero [.01, .09] which confirms the significance of the indirect effect (see Table 7). Thus, subjective norm has a mediating effect on the relationship between the independent variable commitment to Verenso and the dependent variable level of modernity. Therefore, hypothesis 5b is accepted.

No mediation effect of readiness to change on the relationship between commitment to Verenso and level of modernity has been found. Also, no mediation effects of readiness to change and subjective norm on the relationship between commitment to education and level of modernity have been found. Therefore, hypotheses 5a and 6ab are rejected.

	M	SE	LL CI	95% UL	95% CI
Indirect effect	.04	.02	.01	.09	

Table 7 Bootstrapped indirect effect of subjective norm on the relationship between commitment to Verenso and level of modernity
Note: Unstandardized regression coefficients are reported. Bootstrap sample size = 3000.
LL = lower limit; CI = confidence interval; UL = upper limit

5 DISCUSSION AND CONCLUSION

The changes in the field of activity of elderly care physicians have been the central theme of this research. Ajzen's (1991) theory of planned behavior was used as a framework to investigate the changes. Furthermore, moderating and mediating effects have been studied. In this chapter, the findings of this research are discussed, practical implications are elaborated on and strengths and limitations of this study are presented.

5.1 CONCLUSION

Within this research the main research question has been 'How do characteristics of elderly care physicians influence the level of modernity in the field of activity, and what are the roles of organizational culture, commitment to post-graduate medical education and commitment to Verenso in the changing field of activity?'. In order to answer these questions, hypotheses have been tested. These hypotheses will be discussed below. Also, theoretical implications are presented.

5.1.1 THEORY OF PLANNED BEHAVIOR

The first hypothesis was: A higher level of readiness to change leads to a higher level of modernity. A positive significant relationship has been found between readiness to change and level of modernity. This means that in general elderly care physicians who are cognitively and emotionally inclined to accept and adopt the changes show a high level of modernity. So, high readiness to change leads to more successfulness of the changes. However, this relationship was not significant during the multiple regression analysis. When readiness to change, subjective norm and perceived behavioral control are investigated together to what extent they influence the level of modernity, only subjective norm shows a relationship with level of modernity. Therefore it can be concluded that readiness to change is not of great importance for the level of modernity. This is supported by Ajzen (1991), who found that the relative importance of the three variables of the theory of planned behavior is expected to vary across situations and thus, in some contexts

only one or two of the variables is sufficient to have a significant impact on behavior.

The second hypothesis was: A higher level of subjective norm leads to a higher level of modernity. A positive significant relationship has been found between subjective norm and level of modernity. This relationship also turned out to be significant during the multiple regression analysis. So, strong subjective norm leads to more successfulness of change. As can be read above, only subjective norm shows a relationship with the level of modernity during the multiple regression analysis. This proves that subjective norm is of great importance for the level of modernity and the successfulness of change. These findings partly concur with previous research examining the utility of the model in organizational change contexts (see Jimmieson et al. 2008). Jimmieson et al. (2008) found that attitudes and subjective norm are both accountable for intentions and behavior, however they found that subjective norm is the strongest predictor of intentions and behavior, which is in line with the findings in the current study. This is somewhat contrary to previous studies that have reported that subjective norm is the weakest link of the theory of planned behavior model (Ajzen, 1991; Armitage & Conner, 2001). An explanation for the findings in this study is that in behavioral contexts like the field of activity of elderly care physicians, where there are dependent relationships such as potential for reward (pay, promotion, friendships) and punishment (job loss, less respect of colleagues), perceived pressure from important others is a strong predictor of intentions and behavior (Jimmieson, White & Zajdlewicz, 2009). Furthermore, Terry and Hogg (1996) found in their study that the effect of subjective norm on intention and behavior was evident only for subjects who identified strongly with the behaviorally relevant reference group. Since physicians are as professionals committed to their profession and look to their peers for acceptable standards of performance (Gagnon et al., 2003; Ibarra, 1992), this can be an explanation for the importance of subjective norm in current study. The third hypothesis was: A higher level of perceived behavioral control leads to a higher level of modernity. The relationship between perceived behavioral control and level of modernity has been found positive and significant. During

the multiple regression analysis this relationship showed a trend, but was not significant. This means that in general elderly care physicians who perceive ease in performing the change behavior work in a more modern way. So, high perceived behavioral control leads to more successfulness of the changes. However, it is not of great importance for the level of modernity because no significant effect was found during multiple regression analysis. This contradicts the research of Armitage and Conner (2001). They found that perceived behavioral control accounted for significant amounts of variance in behavior, independently of the other constructs in the model. This can also be seen in Figure 1: a direct relation exists between control and behavior. On the other hand, the findings of the current study are in line with Ajzen's (1991) notion that the relative importance of variables can vary across contexts and sometimes only one or two variables have a sufficient impact on behavior, as can be read earlier. An explanation for the outcome found in this study could be that elderly care physicians probably highly identify with their colleagues, therefore the effect of perceived behavioral control is of lesser importance than the effect of subjective norm. Terry and Hogg (1996) found that effects for behavioral choice, or perceived behavioral control, were stronger for subjects who did not identify strongly with the behaviorally relevant reference group than for subjects who did highly identify with the reference group. They showed that personal rather than social determinants of behavioral choice are likely to have the most impact on behavioral choice for persons for whom membership in the behaviorally relevant reference group is not psychologically important. Another explanation for the failure to demonstrate strong effects for perceived behavioral control might be attributable to inadequate conceptualization of this concept. To illustrate this, Kraft et al. (2005) found that perceived behavioral control could be conceived as consisting of three inter-related factors: perceived control, perceived confidence and perceived difficulty. These three factors were not measured separately in the current study.

From the preceding can be concluded that the present study supports Ajzen's (1991) theory of planned behavior. The theory was designed to predict and explain human behavior. The results of this study provide evidence in line with the hypotheses, confirming the utility of the theory of planned behavior to explain the main effects underlying the

behavior of elderly care physicians in the changing field of activity. When the three variables of the theory of planned behavior were considered as a set, the effect of subjective norm on behavior was most important.

5.1.2 MODERATING EFFECTS

Besides the relationships based on the theory of planned behavior, also moderating effects have been studied in this research. The hypotheses about moderating effects are discussed below.

Hypothesis 4a was: A higher level of clan culture amplifies the expected positive effect of readiness to change on the level of modernity. By means of a moderator analysis a significant effect was found of clan culture on the relationship between readiness to change and level of modernity. A more in-depth analysis of this effect revealed that a strong clan culture enhances the relationship between readiness to change and level of modernity. No such significant effect has been found for a weak clan culture.

Hypothesis 4b was: A higher level of clan culture amplifies the expected positive effect of subjective norm on the level of modernity. No significant effects have been found for clan culture on the relationship between subjective norm and level of modernity. The conclusion can be drawn that the influence of subjective norm on the level of modernity of elderly care physicians working in an organization with a clan culture is not significantly different from elderly care physicians who work in an organization without a clan culture. An explanation could be that subjective norm is a part of culture. From the correlation analysis can be concluded that there is a significant relationship between subjective norm and clan culture. Organizational culture is described as the set of shared values, beliefs and norms that influence the way people think, feel and behave toward each other (George & Jones, 2005). Values in organizational culture are the shared beliefs and rules that direct the attitudes and behaviors of employees, making some modes of conduct more socially and personally acceptable than others (Ro-keach, 1973). Since subjective norm is social pressure to perform or not to perform the behavior of interest (Ajzen, 1991), this could have some overlap with the concept organizational culture, and therefore no moderating effect of clan culture was found. Another explanation might be that subjective norm is measured as the social pressure of elder-

ly care physicians, while clan culture is about the social norms and habits of the organization elderly care physicians work for. The clan culture is influenced by the organization, while the relationship between subjective norm and the level of modernity is influenced by the elderly care physician. In other words, the clan culture is about the whole group of employees in an organization, and stresses group attachment and goals rather than individualistic ideals (Xie, Song, & Stringfellow, 2003). On the other hand, the relationship between subjective norm and level of modernity is measured on the individual level of elderly care physicians. These are two different concepts, and therefore a moderating effect could not be found.

Also, no significant effects have been found for hypothesis 4c: A higher level of clan culture amplifies the expected positive effect of perceived behavioral control on the level of modernity. The conclusion can be drawn that the influence of perceived behavioral control on the level of modernity of elderly care physicians working in an organization with a clan culture is not significantly different from elderly care physicians who work in an organization without a clan culture. An explanation could be that perceived behavioral control is a part of culture. From the correlation analysis can be concluded that there is a significant relationship between perceived behavioral control and clan culture. According to Jones (2010), organizational culture shapes and controls behavior within the organization. This could have some overlap with the concept of perceived behavioral control, and this could lead to the abovementioned result. It is notable that it is hard to find any research on the influence of clan culture as a moderator in the relationship between subjective norm and the level of modernity and in the relationship between perceived behavioral control and the level of modernity.

5.1.3 MEDIATING EFFECTS

Besides the moderating effects discussed above, mediating effects were expected in this study. Hypothesis 5a stated that: A higher level of commitment to Verenso leads to a higher level of readiness to change, which leads to a higher level of modernity. No mediating effect was found for readiness to change on the relationship between commitment to Verenso and the level of modernity. An explanation could be that readiness to change can be seen as a perso-

nality trait and has more to do with someone's opinion and feeling about change in general. According to Rogers (1961), Rokeach (1960), and Coan (1974) openness to experience is a personality trait that describes someone's need for variety and experiences. It might be that readiness to change is related to someone's need for variety, and this cannot easily be influenced by external variables, such as commitment to Verenso.

Hypothesis 5b was: A higher level of commitment to Verenso leads to a higher level of subjective norm, which leads to a higher level of modernity. A significant indirect effect was found. Thus, subjective norm has a mediating effect on the relationship between the independent variable commitment to Verenso and the dependent variable level of modernity.

The last hypotheses were about the relationship between commitment to postgraduate medical education and level of modernity, mediated by readiness to change and subjective norm. Hypothesis 6a was: A higher level of commitment to postgraduate medical education leads to a higher level of readiness to change, which leads to a higher level of modernity. And hypothesis 6b was: A higher level of commitment to postgraduate medical education leads to a higher level of subjective norm, which leads to a higher level of modernity. No mediation effects of readiness to change and subjective norm on the relationship between commitment to education and level of modernity have been found. Since commitment to education is measured by means of just one question, this might have influenced the results. It appears important to replicate the abovementioned findings with elaborated measures, before asserting the irrelevance of commitment to postgraduate medical education to the relationship between readiness to change and level of modernity.

From the preceding can be concluded that the presence of a strong clan culture amplifies the positive effect of readiness to change on the level of modernity. Furthermore, the current study found that when elderly care physicians are highly committed to Verenso subjective norm is higher and this leads to a higher level of modernity.

5.2 PRACTICAL IMPLICATIONS

The findings described in the foregoing paragraph do have several practical implications, and can be used in practice. In the present study, the elderly care physicians and residents that filled in the questionnaire appear to be scoring moderately positive on the level of modernity scale. Thus, the prescribed changes are not yet fully implemented by now. This indicates a need for action to further improve the level of modernity. The results of this research indicate that not readiness to change and perceived behavioral control, but especially subjective norm may contribute to stimulating change among elderly care physicians.

So, according to this research it is particularly important to create social pressure to change among elderly care physicians. Asch (1951; 1955), studied powerful pressures in groups and found that group cohesiveness plays an important factor in social pressure. Cohesiveness is the degree of attraction felt by individuals towards some group. Attraction among elderly care physicians might be for instance achieved by non work related activities or by meeting regularly to create more cohesiveness among elderly care physicians (Jones, 1999). This could be organized per region of Verenso, since Verenso consists of eighteen regions in the Netherlands. Another powerful pressure is group size (Asch, 1951; 1955). It appears that the larger the influencing group, the greater the tendency to go along with the change even if this means behaving differently than someone prefers. So, more elderly care physicians who want to change (change agents) are needed to make the changes a success. Since postgraduate medical education is used as a change instrument and a 'modern' method of working is taught (Geertsema, 2011), residents could be change agents in the field of activity. However, this study revealed that 69% of the 87 residents who filled in the questionnaire gets the chance to work as taught in postgraduate medical education in the organization were they fulfill the practical part of their training. 61% of the residents experience that the organization they work for enables them to work according to the vision of postgraduate medical education. But only 37% thinks their ideas and wishes are being implemented by the organization. Consequently, the 'modern' way of working as being taught by postgraduate medical education seems not to be implemented by residents while they are still in training. However, once they are

registered they could have more power in the organization they work for, and hence are more able to work according to what is taught by postgraduate medical education. So, emphasis on the importance of change and communication of change in the field of activity is very important in postgraduate medical education at the UMCG. This could for instance be achieved by change management and communication courses.

Another practical recommendation is about commitment to Verenso. Commitment to Verenso appeared quite low in this study. Since commitment to Verenso leads to a higher level of modernity (with a mediating effect of subjective norm), Verenso should try to recruit elderly care physicians to join Verenso and make them committed to Verenso. Also, Verenso could send email and brochures, and organize meetings where the changes in the field of activity are discussed and success stories of the 'modern' way of working are presented. The meetings could be organized per region of Verenso.

Moreover, postgraduate medical education and Verenso could cooperate in organizing continuous medical education with interactive meetings for elderly care physicians where cases of 'modern' ways of working can be discussed, success stories are presented and questions about the changes in the field of activity can be asked. These interactive meetings can also be used in postgraduate medical education. In meetings for residents, the curriculum can be clarified and linked to the successful changes in the field. In so doing, the importance of working in a 'modern' way is emphasized, and readiness to change can be created. A further recommendation has to do with the finding of clan culture positively influencing the relationship between readiness to change and level of modernity. The UMCG can use this knowledge about the changes in postgraduate medical education, and put emphasis on teamwork and cooperation among elderly care physicians, but also among other disciplines, since teamwork is a feature of clan culture (Cameron & Quinn, 2005). Education can probably not be used to teach residents how to change organizations into a clan culture, since changing an organization is very difficult, and according to Rogers et al. (2006), the failure rate for cultural change initiatives is 90 percent. Despite this fact, residents can learn more about aspects of clan culture such as teamwork and participation, in order to try to incorporate pieces of a clan culture in the organization.

Last recommendations are about consulting, cooperation, delegation and scientific research. Data about the level of modernity indicated that elderly care physicians work in several workplaces, instead of just a nursing home. Also, there is a trend towards consulting functions, although this is not common practice. Postgraduate medical education could teach residents how to handle working in several workplaces and how to be a consultant to other medical specialists. Also, data indicated that there is little cooperation with for instance general practitioners and clinical geriatrists. More cooperation is needed because of the changing healthcare environment and in order to provide better care (Koenen et al., 2010). Postgraduate medical education might be used to learn how to cooperate in the field of activity. On top of that, education could emphasize the importance of delegation of task to nurses, in order to work in a more efficient manner. Lastly, postgraduate medical education should make residents more enthusiastic for scientific research. In this way probably more elderly care physicians will practice evidence based medicine, which will increase the level of modernity.

A better fit between the education and practice in the field might be achieved by the abovementioned recommendations. In this way, new elderly care physicians could be better prepared to work independently in the field of activity. Also, elderly care physicians will probably work in a more 'modern' way and the profession of elderly care physician would be more sustainable and more efficient in the future.

5.3 STRENGTHS, LIMITATIONS AND FUTURE RESEARCH

The main strength of this study is that it is among the first to provide a thorough overview of the influences on changes in the field of activity of elderly care physicians. This study has taken into account numerous variables that are of influence to the successfulness of change in the field of activity. The theory driven assessment adds support for Ajzen's (1991) theory of planned behavior, and can be useful for postgraduate medical education and Verenso, since they are currently busy with changing the field of activity of elderly care physicians.

This research has some limitations which have to be considered. First of all, generalization of the results and interpretation of the assumed causal relationships should be done

cautiously due to the low response rate of elderly care physicians. Further research should try to send questionnaires addressed personally by email to elderly care physicians in order to accomplish a higher response rate.

A second limitation is about the fact that this research makes use of only one measurement moment. This means that the data is not longitudinal. The question is whether or not the relationships found in current study are stable over time. Also, a possible decrease or increase in the level of modernity can be measured by several measurement moments. Further research could therefore make use of more measurement moments.

A suggestion for further research is about variables that could have been researched. Because in this study many, but not all possible relationships and effects of the variables could be researched, the potential moderating or mediating effects of other possible variables should be further researched. Based on the characteristics of the field of activity, other potential moderators that could be researched might be the age of the elderly care physicians, size of the organization the elderly care physician works in or other organizational cultures. Also, this study found that the elderly care physicians and residents scored higher on readiness to change, subjective norm and perceived behavior control than on level of modernity. This means that there might be variables that hampered their intention to change. What variables exactly cause this could be researched in future research.

A further suggestion for research is to study the role of postgraduate medical education in the changes in the field of activity more in depth. According to Geertsema (2011), postgraduate medical education is used as a change instrument. However, influence on the level of modernity of postgraduate medical education was not found in the present research. It is therefore of great interest to investigate the role of education more in depth. A suggestion for further research is to resume the current study, and match and compare the responses of residents with the responses of their supervisors. Hereby information could be gathered about the influence of ideas and attitudes about change of supervisors on residents and vice versa. In so doing, the role of postgraduate medical education in the changing field of activity could be clarified.

Another suggestion for further research is about the measurement of perceived behavioral control. As can be read

above, Kraft et al. (2005) found that perceived behavioral control could be conceived as consisting of three inter-related factors: perceived control, perceived confidence and perceived difficulty. It is suggested that future research adopts this approach to measure perceived behavioral control.

Also, by monitoring the news and developments of the environment and politics concerning the healthcare, aging population and health issues of elderly people many other ideas for further research on the field of activity of elderly care physicians can emerge. If policies will be changed, this can have consequences for healthcare in general and especially for the field of activity of elderly care physicians. What will the government decide on elderly care in the Netherlands? And how does this affect the field of activity of elderly care physicians? But also in respect of the aging population: will there be enough elderly care physicians in the future to provide care for the growing elderly population? Is it possible to change the image about elderly care physicians, and how can postgraduate medical education become more popular to students?

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APPENDIX MODERATOR ANALYSES

	B	SE	β	t
Constant	.03	.04		.65
Readiness to change	.19	.08	.23	2.36
Clan culture	2.539E-5	.00	.00	.01
Constant	.02	.04		.55
Readiness to change	.23	.08	.29	2.86
Clan culture	.00	.00	-.04	-.36
Readiness x clan	.01	.00	.20*	2.01

Table 1a Results for moderator analysis for clan culture
 Model 1. $R^2 = .23$ R^2 adjusted = .03, $F(2, 99) = 2.80$ $p = .07$
 Model 2. $R^2 = .30$ R^2 adjusted = .06, $F(1, 98) = 4.04$ $p = .05$
 ** $p < .01$. * $p < .05$.

	B	SE	β	t
Constant	.03	.04		.64
Subjective norm	.18	.08	.24	2.40
Clan culture	-.00	.00	-.05	-.47
Constant	.03	.04		.60
Subjective norm	.19	.08	.24	2.35
Clan culture	-.00	.00	-.05	-.47
Subjective norm x clan	.00	.00	.01	.06

Table 1b Results for moderator analysis for clan culture
 Model 1. $R^2 = .23$ R^2 adjusted = .04, $F(2, 99) = 2.80$ $p = .06$
 Model 2. $R^2 = .23$ R^2 adjusted = .03, $F(1, 98) = 4.04$ $p = .06$
 ** $p < .01$. * $p < .05$.

	B	SE	β	t
Constant	.04	.04		1.03
PBC	.12	.06	.23	1.84
Clan culture	-.00	.00	-.04	-1.10
Constant	.08	.05		1.73
PBC	.08	.07	.15	1.13
Clan culture	-.00	.00	-.12	-1.00
PBC x clan	-.01	.00	-.17	-1.60

Table 1c Results for moderator analysis for clan culture
 Model 1. $R^2 = .18$ R^2 adjusted = .01, $F(2, 99) = 1.70$ $p = .19$
 Model 2. $R^2 = .24$ R^2 adjusted = .03, $F(1, 98) = 2.55$ $p = .11$
 ** $p < .01$. * $p < .05$.

	B	SE	β	t
Clan culture high	.31	.10	.46*	2.99
Clan culture low	.10	.08	.14	1.16

Table 2 Simple slope coefficients of the interactions between readiness to change and clan culture.
 ** $p < .01$. * $p < .05$.

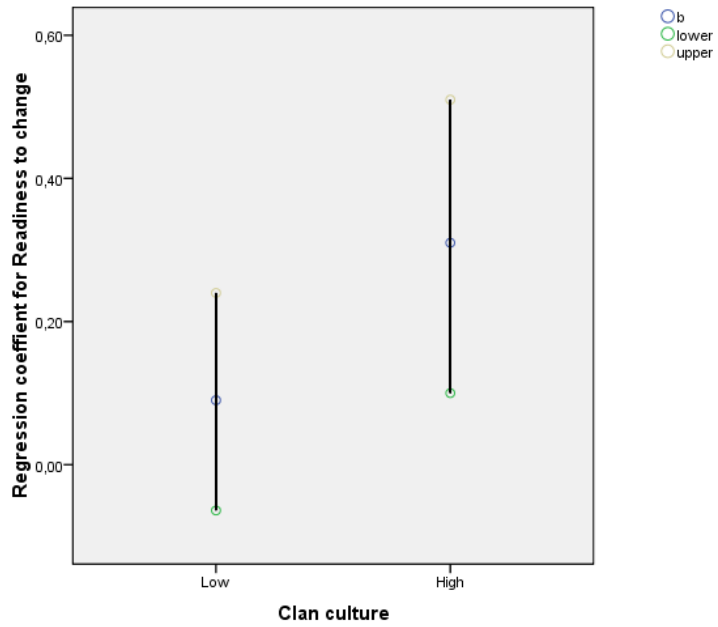


Figure 1 Regression coefficients with confidence intervals for low clan culture and high clan culture.