

PRIMARY CARE GATEKEEPERS

**The effect of primary care
physicians as gatekeepers on
patient satisfaction**

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TESSA GERRITS
980804258070**

Wageningen University and Research
Bachelor Health and Society
Chair group Business Management and Organisation
Supervisor: Jasmina Ruger

Abstract

Background Primary care physicians (PCPs) often act as gatekeepers, coordinating patients care and authorizing patients' access to specialty care. Gatekeeping has as goal to lower health expenditure and health service use. However, gatekeeping could influence patient satisfaction. **Aim** To establish the influence of PCP gatekeeping on the satisfaction of patients. **Method** A systematic literature review is done. The database PubMed was searched for relevant articles using a search strategy and inclusion/exclusion criteria. One author screened the search results and assessed the quality of the studies. A critical appraisal was done with the tool TAPUPAS. **Results** Electronic searches identified 248 studies, of which 11 met the inclusion criteria. Snowballing delivered 15 other relevant studies. In general, patients are satisfied with the referral system. However, a lot of other factors influence the results. **Conclusion** Communication between patient, PCP and specialist is of great importance. Especially communication between PCP-specialist could be improved. Choice is an important factor that influences patient satisfaction. The greater the ability for the patient to choose, the higher the satisfaction. In addition, longer patient-PCP relationships increase patient satisfaction. Policies should support patients in choosing their PCP and stimulate long patient-PCP relationships.

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Introduction

Problem statement

The last decades, the costs for public health care have continuously been growing. Some causes are the aging population, availability of new treatments, new technologies and growing public expectation. Therefore, appropriate use of health care is of importance (Linden et al., 1999). However, in the past especially the direct access system was maintained, which leaves patients free to visit either a general practitioner first or to visit directly a specialized physician (Kroneman, Maarse, & van der Zee, 2006). Patients often sought care directly from a specialist, what sometimes resulted in high costs and a shortage in specialists (Bodenheimer, Lo, & Casalino, 1999; Loudon, 2008). The high costs were, among others, caused by an accumulation of diagnostic and therapeutic interventions. Patients visited physicians in multiple specialties which gave a rise in costs. On top of that, patients sometimes received duplicate diagnostic studies and prescription that adversely interacted with medications they were already taking (Bodenheimer et al., 1999). These problems could be prevented through a single physician coordinating their care (Garrido, Zentner, & Busse, 2011).

In response to the problems, medical reformers created the concept of primary care physician (PCP). Primary care was defined as including first contact care, comprehensive care, preventive care, continuity of care over time, coordination of care, and cost-effective care (Bodenheimer et al., 1999). PCP was associated with higher compliance of medication use and fewer hospitalizations. Better coordination of care would be provided in combination with more preventive services, which resulted in lower overall costs (Bodenheimer et al., 1999; Wu, Wang, Lam, & Hesketh, 2014).

The last years, PCPs could get a role as gatekeeper. Gatekeeping in health care is defined as the process of matching patients' needs and preferences with an efficient use of medical services (Garrido et al., 2011). It has become popular in managed care organizations and is an effort to structure and coordinate health care service delivery. Inefficient services and discontinuous care would be eliminated, obstructing care-seeking and thus preventing going from doctor to doctor (Hurley, Freund, & Gage, 1991; Bodenheimer et al., 1999). In gatekeeping systems, patients are required to visit a PCP first to authorize access to specialty care (Scripa, Hayhoe, Garg, Majeed, & Greenfield, 2019). Through implementing a PCP as gatekeeper, patient demand for specialty referrals can be managed (Forrest, Nutting, Von Schrader, Rohde, & Starfield, 2006). However, gatekeeping leaves PCPs up with the decision of which conditions they will treat. They decide which cases will be referred to a specialist. This effect causes less choice of the patients, what is in contradiction with the situation before (Hurley, et al., 1991; Bodenheimer et al., 1999).

Some might say that the gatekeeping system has effect on the satisfaction of patients. Patient satisfaction is of importance, since it is a relevant criterion to assess the performance of a health care system (Kroneman et al., 2006). Patient experience, which is related to satisfaction, is recognized as one of the three pillars of health care quality. The two other pillars are clinical effectiveness and patient safety (Wolfe, 2001). Moreover, quality improvement programs in health care are centred on the health care consumer (Ross, Steward, & Sinacore, 1993). Patients are a good source for problem screening. For these problems, effective plans can be developed to improve the quality in health care organizations (Boyer, Francois, Doutre, Weil, & Labarere, 2006).

Aim

Multiple studies researched what factors influence patient satisfaction in the health care sector. These studies provided a model with elements that determine service quality within the health care sector, and therefore patient satisfaction. However, the studies do not explain what the effect of the PCP as gatekeeper is on the elements of this model. This provides an information gap. The aim of this

study is to address the effect of gatekeeping in primary care on the patient satisfaction by performing a systematic literature review of the current literature available. This study will contribute to knowledge on PCP gatekeeper practice. This, in turn, can contribute to quality improvement programs in health care and therefore to better health care organizations. In addition, this study will contribute to scientific research, filling the knowledge-gap on the effect of PCP as gatekeeper on the patient satisfaction.

The main question is: 'What is the effect of primary care physicians as gatekeepers on patient satisfaction according to the literature?'

Theoretical Framework

Patient satisfaction is affected by many variables (Naidu, 2009). The need for the measurement of patient satisfaction has been largely driven by the rise in the health consumer movement and the concomitant underlying politics of 'new public management', which resembles private-sector management and business techniques and approaches (Hood, 1995; Williams, 1994). This resulted in a widespread use of patient satisfaction as a measure in the health sector and multiple studies did research into this topic (Boyer et al., 2006). According to Cleary & Edgman-Levitan (1997), satisfaction surveys in the health care sector do not measure quality of care if they do not include important aspects of care such as being treated with respect and being involved in treatment decisions. Researchers disagree about the way service quality perceptions should be measured. However, it is generally agreed that service quality is a multidimensional and higher order construct (Dagger, Sweeney, & Johnson, 2007).

One of attempts to measure patient satisfaction is the SERVQUAL scale, which is widely applied to evaluate the service quality. The scale has five dimensions, namely reliability, empathy, tangibles, responsiveness and assurance. However, SERVQUAL has been criticised because the dimensions are limited. Because of this, it is difficult to replicate it across diverse service context (Parasuraman, Zeithaml, & Malhotra, 2005; Buttle, 1996). The SERVQUAL scale in the context of health care services also yielded mixed results (Dagger et al., 2007).

On the other hand, the 'multi-dimensional hierarchical model of perceived service quality' should deliver a better result (Figure 1). In this model, more dimensions are included which provides that it is more applicable across diverse service context (Dagger et al., 2007). Therefore, it is used for this study. The model consists of four dimensions, influenced by nine sub dimensions (Dagger et al., 2007), which result in more elaboration of factors that influence patient satisfaction. Especially interpersonal quality and administrative quality are more detailed. This is of importance, since relationship and communication as well for patient-PCP as PCP-specialist is relevant for better health care (Berendsen et al., 2009; Kulu-Glasgow, Delnoij, & De Bakker, 1998). Service quality may be most appropriately conceptualized as a formative construct (Rossiter, 2002; Dabholkar, Shepherd, & Thorpe, 2000; Parasuraman et al., 2005). The dimensions give rise to or cause the overall construct according to this formative approach (Jarvis, MacKenzie, & Podsakoff, 2003).

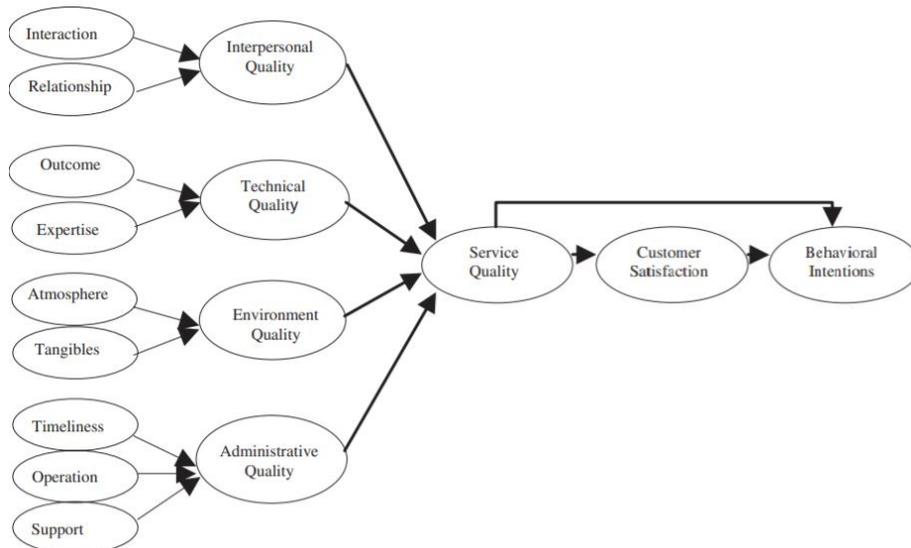


Figure 1. multi-dimensional hierarchical model of perceived service quality (Dagger et al., 2007)

One of the dimensions of the model is interpersonal quality, which refers to interpersonal care. This represents the management of the interaction that occurs between the service provider and consumer. Two core themes are interaction and relationship, whereby manner and communication are important (Dagger et al., 2007). Manner reflects the attitude and behaviour of a service provider in the service setting (Bitner, Booms, & Tetreault, 1990; Brady, & Cronin, 2001). Communication describes the transfer of information between a provider and a consumer. It looks at the degree of interaction and the level of two-way communication. Relationship reflects the closeness and strength of the relationship developed between a provider and a consumer. It includes trust and mutual liking (Beatty, Mayer, Coleman, Reynolds, & Lee, 1996). Support is stated as a core theme of administrative quality. However, support may be more suitable within interpersonal quality as it is not only concerned with administrative structures, but also with how consumers are and feel supported by their provider. This review assumes that the support patients feel by their PCP is likely to affect the patient satisfaction. In addition, the core themes are applied on the PCP as provider and the patient as consumer. The interaction and the relationship between the PCP and the patient are examined. With that the interpersonal quality of the PCP is determined.

Secondly, the dimension technical quality describes the outcome of the service process, or what a consumer receives as a result of interacting with a service (Dagger et al., 2007). It reflects the expertise and outcome. Expertise refers to a provider's competence, knowledge, qualifications, or skill (Aharony, & Strasser, 1993). Outcome does not refer to an ultimate result (e.g., cure), but rather to the experience of the service (Dagger et al., 2007). This review examined the technical quality of health care by the PCP. How the patient experiences the service process of the PCP is been studied. This includes the expertise of the PCP and the outcome experienced by the patient after care of the PCP.

Thirdly, administrative quality refers to service elements that facilitate the construction of a core service while adding value to a consumer's use of the service (Grönroos, 1990; McDougall, & Levesque, 1994). Core themes are timeliness and operation. Timeliness indicates the factors involved in arranging to receive medical services, for instance appointment waiting lists, waiting time, the ease of changing appointments, and hours of operation (Thomas, Glynne-Jones, & Chaiti, 1997). The element operation refers to the core service production through the general administration of the clinic and the coordination, organization, and integration of medical care (Meterko et al., 1990; Wensing, Grol, & Smits, 1994). Regarding this review, the effect of the gatekeeping system on the administrative quality is described. Timeliness is analysed as arranging to receive medical services of

the PCP. In addition, the operation between PCP and specialist is examined on patient, PCP and specialist level. Through applying these elements on the gatekeeping system, the effects on patient satisfaction is analysed.

At last, the environment quality defines the complex mix of environmental features that shape consumer service perceptions (Gotlieb, Grewal, & Brown, 1994). This is of less importance regarding the change of implementing the gatekeeping system. Therefore, it is not been researched in this review.

Sub questions

With the multi-dimensional hierarchical model of perceived service quality, multiple sub questions can be formed. The combination of these sub questions will lead to an answer on the main question. The following sub questions will be elaborated:

1. What is the effect of implementing primary care physicians as gatekeepers on the interpersonal quality of the physicians experienced by patients?
2. What is the effect of implementing primary care physicians as gatekeepers on the technical quality of the physicians experienced by patients?
3. What is the effect of implementing primary care physicians as gatekeepers on the administrative quality of the physicians experienced by patients?

Methodology

To answer the research question, a systematic literature review is conducted. The intention was to search two databases. Scopus and PubMed were screened, because they grant access to a broad scope of subjects. First, the screening procedure was done in PubMed. However, during the screening procedure of Scopus it was noticed that it consisted of the same articles found in PubMed. Due to this, the fully screening process is only done in PubMed. In the theoretical framework is stated that multiple elements can lead to 'satisfaction'. Therefore, it was not necessary to implement 'satisfaction' in the search string and it has been left out. With this, more possible relevant articles could be found. For conducting the search, the following search string was used: TITLE-ABS-KEY (("primary physician" OR "primary care physician" OR "general practitioner" OR PCP OR GP) AND (gatekeep* OR "gatekeeping system")) AND (patient OR customer OR consumer)).

First, documents were excluded when they were not peer-reviewed or were written in another language than English or Dutch. When the search string was implemented, the results per publication year could be seen in PubMed. It was clear that before 1997 less results were found. Therefore, articles that were published before 1997 were excluded. Hereafter, all titles and abstracts of the documents were read and selected based on other in- and exclusion criteria, which are stated in Table 1. Articles that were not based on primary data, for example a literature study or meta-analyses, were excluded. Besides screening in databases, snowballing was used: reading an article and discovering other relevant articles within the references of that article. In addition, relevant articles were implemented in Google Scholar. Herein was analysed which other studies cited the already stated relevant articles. This yielded more articles.

Inclusion criteria	Exclusion criteria
<i>Selection criteria in databases</i>	
Article	Other than article
Peer-reviewed	Non peer-reviewed
Full text available	Full text not available
Written in English or Dutch	Not available in English or Dutch
Published since 1997	Published before 1997
Consists of primary data	Does not consist of primary data (e.g. literature study or meta-analyses)
<i>Other criteria</i>	
After reading the title it seems to be relevant for the literature study	After reading the title it seems not to be relevant for the literature study (e.g. gatekeeper is not the PCP, described effects are not related to patient satisfaction, study is about funding gatekeeping)
After reading the abstract it seems to be relevant for the literature study	After reading the abstract it seems not to be relevant for the literature study
After reading the full text it seems to be relevant for the literature study	After reading the full text it seems not to be relevant for the literature study

Table 1. Inclusion- and exclusion criteria

To determine the effect of the PCP as gatekeeper on patient satisfaction, the articles which were included in the study, were divided into three categories. The three categories were interpersonal quality, technical quality and administrative quality. These categories were based on the multi-dimensional hierarchical model of perceived service quality provided in the theoretical framework. Hereafter, the articles were read for relevant information. A critical appraisal with the tool TAPUPAS was done for each study that is included in the review. Based on the comparison of the articles found and the division into the three categories, an overall conclusion regarding the effect of PCP as gatekeeper on patient satisfaction is drawn.

Results

Study selection

Database search via PubMed yielded 248 articles. Following title screening, 96 articles were left. After screening the abstracts and eliminating articles that did not consist of primary data, 26 full-text studies were obtained. A total of 15 studies were excluded, because they did not meet eligibility criteria, leaving 11 studies for analyses. Through snowballing, 11 other studies were found (Figure 2). Via analysing which other studies cited the already included studies, 4 other studies were added. After the critical appraisal, 26 studies were included in the systematic literature review.

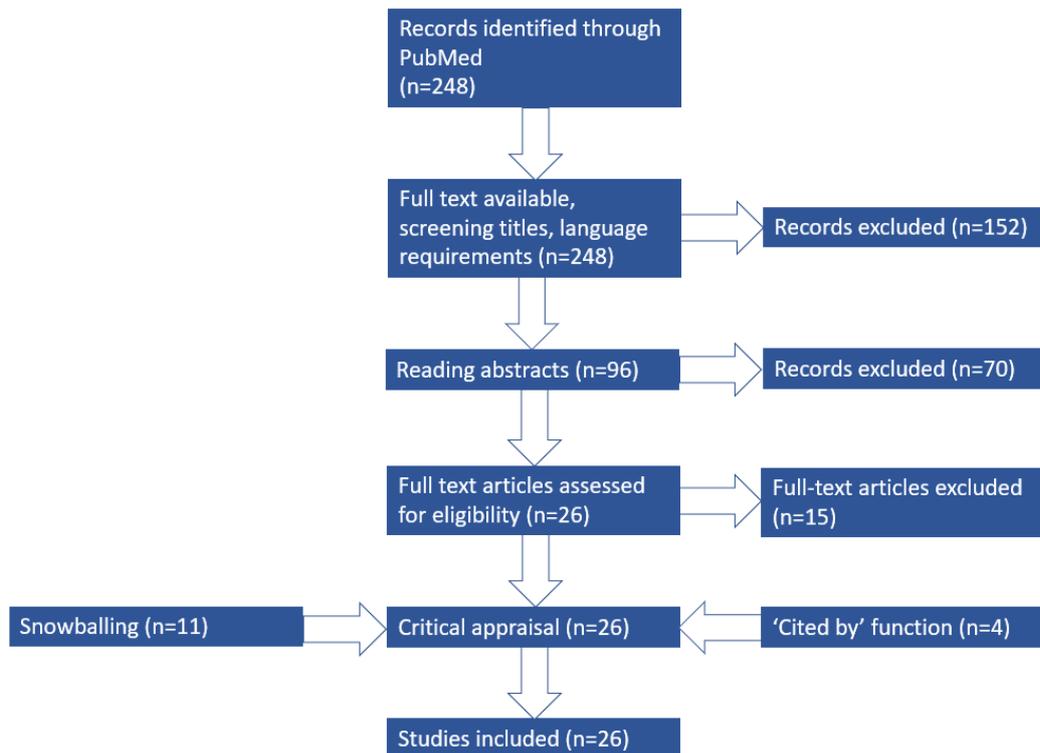


Figure 2. Flowchart of literature search.

Study characteristics

Most included studies have a cross-sectional design, two studies are cohorts. Nevertheless the review excluded secondary data during screening in PubMed, two systematic reviews are included. They were found via snowballing and consisted of useful information. There were five studies from the Netherlands, six of the UK, two of Germany, one of Norway, two of Israel, one of Estonia and seven of the US. Of two studies the country could not be determined and three studies were done in multiple countries. In ten studies the gatekeeping system was maintained and in ten other studies the direct access system. In five studies both systems were maintained and of one study it could not be determined. Most of the studies included adults and examined the effects of gatekeeping interventions. This was done by analysing different factors as referrals, satisfaction by patient and specialist, appointments with the PCP, and reasons for skipping referrals. Table 2 and 3 show characteristics and outcomes of the included studies.

Study and year	Study design	Country	Health care system	Participants	Age, years	Condition
Alaszweski (2003)	Literature review	N/A	N/A	N/A	N/A	Structure of trust relations in health care
Calnan et al. (2007)	Literature review	UK	Gatekeeping	N/A	N/A	Structure of trust relations in health care
Berendsen et al. (2009)	Cross-sectional	The Netherlands	Gatekeeping	71 patients	34-83, average 59	Referred to specialist in past 2 years
Bowling et al. (2000)	Cross-sectional	UK (North Thames Region)	Gatekeeping	982 patients; 34 specialists, 393 PCPs	N/A	N/A
Eide et al. (2002)	Cross-sectional	Norway	Gatekeeping	36 patients; 4 specialists	specialists: 45-55 patients: average 50	Specialists were experienced oncologists working with cancer patients on a daily basis
Ferris et al. (2001)	Cohort	N/A	Both	59.997 during gatekeeping, 29.999 during direct access	27.2-56.2	After 25 years the gatekeeping system was turned into direct access
Forrest et al. (2002)	Cross-sectional	US	Direct access	19.145 patients	18-64	Visited PCP in past 12 months
Ghandi et al. (2000)	Cross-sectional	US (Boston)	Direct access	48 PCPs, 207 specialists	N/A	Specialists were selected for the survey if they had received more than ten managed care referrals within the past 2 years
Gross et al. (2000)	Cross-sectional	Israel	Direct access	1065 patients	>22	Implementing the gatekeeping system is considered
Grumbach et al. (1999)	Cross-sectional	US (California)	Direct access	7718 patients	Mean: 66.7	Medical conditions that increase in prevalence with age
Kalda et al. (2003)	Cross-sectional	Estonia	Direct access	997 patients	>15	A part was listed with their own personal physician

Kroneman et al. (2006)	Cross-sectional	18 European countries	Both	N/A	N/A	Direct access or gatekeeping system
Kulu-Glasgow (1998)	Cross-sectional	The Netherlands	Gatekeeping	861 patients	N/A	Interest in skipping the PCP
Lin et al. (2000)	Cross-sectional	US	Direct access	860 patients	N/A	Patient desire/reasons for specialist referrals
Little et al. (2004)	Cross-sectional	UK	Gatekeeping	847 patients	16-80	Influence of patient pressure on PCP
Lurås (2007)	Cross-sectional	Norway	Gatekeeping	2326 patients	<24=8% (176); 25-44=39% (899); 45-66=37% (864); 67-79=12% (283); >80=4% (104)	Visited PCP during past months, included persons that were more frequent users of healthcare than average
Mainous et al. (2001)	Cross-sectional	US and UK	Both	418 patients US, 650 patients UK	>18	Relationship between continuity of care and trust in one's physician, differences between US and UK
Malley et al. (2008)	Cross-sectional	US	Direct access	3.436 patients	>18	Adults with a PCP and one or more visits to a specialist in the past 12 months
Rodriguez et al. (2007)	Cohort	US	Direct access	14.835 patients, 145 PCP	N/A	Patients visited PCP at least two times over the study period
Rosemann et al. (2006)	Cross-sectional	Germany	Direct access	26 PCPs, 446 referrals	19-86, mean 49.2	Patients needing medical specialist care
Rotar et al. (2018)	Cross-sectional	32 countries	Both	6572 patients	N/A	Participants in gatekeeping and non-gatekeeping systems
Rubin et al. (2006)	Cross-sectional	UK	Gatekeeping	1153 patients	18-90, mean 46.15	Adults consulting a PCP in six general practices in

						Sunderland
Schee et al. (2007)	Cross-sectional	Germany, The Netherlands and England and Wales	Both	England and Wales: 1155; Germany: 1514; The Netherlands: 1415; total: 4083 patients	England and Wales: mean 526; Germany: mean 48.2, The Netherlands: mean 47.6	N/A
Schellevis et al. (2005)	Cross-sectional	The Netherlands	Gatekeeping	8007 patients	N/A	Managed health care plan
Tabenkin et al. (1998)	Cross-sectional	Israel	Direct access	2653 patients	N/A	Patients' opinions about direct access and referral by PCP
Wammes et al. (2014)	Cross-sectional	The Netherlands	Gatekeeping	157 PCPs, 8831 patients	PCP: mean 51, patient: N/A	Questioning if population receives too much health care

Table 2. Characteristics of included studies.

Study	Favouring gatekeeping	Favouring direct access	Neutral
Alaszweski (2003)			Trust is an important element of health care, since it is characterised by uncertainty and risk regarding the competence and intentions of the practitioner on whom the patient is dependent.
Calnan et al. (2007)			Trust indicates positive expectations regarding competence and working in their best interest.
Berendsen et al. (2009)	Most patients think the PCP plays an important role in making decisions regarding referral, but they want to let them make their own decisions. Patients were satisfied with the attitude of PCP and the waiting time to see the PCP. They prefer staying in contact with PCP after referral. However, contact between specialist and PCP should be improved.		
Bowling et al. (2000)	PCP undertakes investigation prior to referral, most		

	patients experience it as “thorough”. PCP is able to perform minor surgery. Specialists report that the referral is appropriate, but PCP could have done more. PCP and specialist communication should be improved.		
Eide et al. (2002)			Informal and non-medical talk is of importance regarding communication. During examination it should be avoided.
Ferris et al. (2001)	Little evidence was found of changes in the use of specialty services by adults in the first 18 months after the end of gatekeeping.		
Forrest et al. (2002)	Gatekeeping by PCPs is important in coordinating services and thus reducing inefficient healthcare. However, it might undermine patients’ trust in their PCP since referral to specialists will be lower. Choice of PCP is associated with satisfaction, so patient should be able to choose his/her own PCP.		
Ghandi et al. (2000)		PCPs and specialists were dissatisfied of each other’s communication.	
Gross et al. (2000)	High percentage of preference for self-referral was a result of not having a permanent PCP. When there was doubt, patients went to their PCP.		
Grumbach et al. (1999)		Patients valued the role of a PCP as first-contact care and coordinator of referrals. Most patients preferred to seek care initially from their PCP rather than specialists. Patients have lower trust, confidence and satisfaction regarding their PCP when they need referrals but have difficulties to obtain them.	

Kalda et al. (2003)	Self-registering with a personal PCP is of great importance, since patients are then more satisfied with different aspects concerning their PCP.		
Kroneman et al. (2006)		Patients prefer the direct access system above the gatekeeping system, due to choice. Patients of both systems are even satisfied regarding to technical quality of PCP and patient-PCP communication.	
Kulu-Glasgow (1998)	In the Dutch health care system, the privately insured have more 'opportunities' to dispose of the rules of referral. The longstanding gatekeeping position of the PCP is widely accepted by Dutch patients. Patients who have a financial interest in skipping their PCPs, still 75% chose to visit their PCPs before consulting a specialist. But the majority thinks that they should be able to see a specialist without having to visit the PCP first.		
Lin et al. (2000)		Patients' need for specialist referral is driven by reassurance, previous specialist referral, PCP not having the requisite expertise. Patients' expectations for referral depends on the healthcare system and thus differs. But most patients who sought a specialist referral were positive about the gatekeeping system, whether or not they were referred to a specialist.	
Little et al. (2004)		Patients pressure influences PCP decision of referral.	
Lurås (2007)			Patients that were listed with their first choice PCP were more satisfied with PCP's

			interpersonal skills, medical skills and consultation lengths.
Mainous et al. (2001)			Contuinity of PCP visit increases trust of patients and therefore contuinity should be improved.
Malley et al. (2008)			Continuity of visits with the same PCP and referral initiated by PCP were independently associated with higher ratings of care coordination.
Rodriguez et al. (2007)			Higher PCP visit continuity increases patient satisfaction regarding health promotion support by PCP, PCPs knowledge of the patient and patients' willingness to recommend their PCP.
Rosemann et al. (2006)	Patients, PCPs and specialists are positive concerning the value of referrals from primary care to medical specialists. Patients were most positive if the physician had initiated the referral, which supports the gate keeper role of the PCP.		
Rotar et al. (2018)	PCPs in countries with a gatekeeping system are more likely to always take into account patients' preference, travel distance, waiting time and costs. The PCPs from countries with direct access, are more likely to consider their previous experience with a specialist and comparative performance information.		
Rubin et al. (2006)	Shorter waiting times can be outweighed by preference of choice of PCP.		
Schee et al. (2007)	The typical gatekeeping countries England and the Netherlands report high trust in their PCP.		
Schellevis et al. (2005)	Patients feel that the PCP is taking them seriously and the PCP explains well. The PCP is willing to do extra effort to see the patient and		

	takes enough time for the consult.		
Tabenkin et al. (1998)		Patients have a high referral expectation. 52% preferred direct access, 48% preferred to see their PCP first.	
Wammes et al. (2014)		Patient pressure has a significant influence on PCP referral decision.	

Table 3. Extracted outcomes from included studies.

Risk of bias assessment

A critical appraisal is done with the tool TAPUPAS. Most of the studies are of fair quality. A couple of studies could be improved at some points, which is shown in Table 4 in the Appendix. Quality assessment for included studies is available from the author on request.

Impact of gatekeeping on various dimensions

General results

In general, two main types of health care systems can be observed. The types of systems that are analysed in the included studies can be found in Table 2. Countries that manage the direct access system are among others Belgium, France and Finland. On the other hand, countries as England and the Netherlands have referral systems. In the Netherlands, about 60% of the population is publicly insured. With this insurance, a patient always needs a referral from the PCP to visit a specialist. On the other hand, the privately insured have more 'opportunities' for self-referral before visiting a specialist (Kulu-Glasgow et al., 1998). Referral regulation by PCPs has impact on physicians, their patients, and the physician-patient relationship (Lin et al., 2000).

Multiple studies have contradicting results. The study of Lin et al. (2000) reported that most of the patients who sought a specialist referral were positive about the gatekeeping system, whether or not they were referred to a specialist (Lin et al., 2000). On the other hand, the study of Tabenkin, Gross, Brammli & Shvartzman (1998) stated that 52% of the patients preferred direct access to specialists, while 48% preferred to see their PCP first. Ferris, Chang, Blumenthal & Pearson (2001) analysed the ending of a gatekeeping system that had been in place for over 25 years. In contradiction, they found little evidence of substantial changes in the use of specialty services by adults in the first 18 months after the end of gatekeeping (Ferris et al., 2001).

Kulu-Glasgow et al. (1998) analysed the values and expectations of patients regarding the PCP and specialists. A result that was found was that among self-referring patients, the value-expectancy score for the specialist is higher than that for the PCP. A reversed finding was observed when the group of patients were referred by the PCP to a specialist. Then the value-expectancy score for the PCP was higher than that for the specialist. These findings can lead to the thought that patients who expect that the specialist fullfeeds their needs more, will be more inclined to self-refer (Kulu-Glasgow et al., 1998). The overall conclusions in the study of Kulu-Glasgow et al. (1998) is that the gatekeeping role of PCPs is widely accepted in the Netherlands. From the Dutch habitants that have financial interest in skipping their PCPs, still three quarter prefers to consult their PCPs before visiting a specialist. However, the majority thinks that they should have the choice to consult a specialist without visiting the PCP first. For example, for cases when patients think that they need the advice of a specialist rather than of their PCPs, or cases where they are familiar with the health problem such as chronic diseases (Kulu-Glasgow et al., 1998).

Interpersonal quality

According to the multi-dimensional hierarchical model of perceived service quality, interpersonal quality is one of the dimensions that can influence patient satisfaction. Two core themes are interaction and relationship (Dagger et al., 2007).

Relationship

The relationship of the PCP with the patients are characterized by practitioners providing support and empathy. This goes with co-participatory communication and mutual trust. The physician is ought to know the whole patient (Leopold, Cooper, & Clancy, 1996 as cited in Forrest, Von Schrader, & Ng, 2002). Patient-PCP relationship is of importance, since sustained partnerships with PCPs determine patients' healthcare experiences (Forrest et al., 2002). The impact on the relationships influences the evaluation of managed care by patients. Gatekeeping by PCPs is important in coordinating services and thus reducing inefficient healthcare. On the other hand, it might undermine patients' trust in their PCPs since referral to specialists will be lower (Forrest et al., 2002; Grumbach et al., 1999).

Shared decision making and choice

An important difference between the patient-PCP relationship and the patient-specialist relationship, is the time that it exists. The relationships between the specialists and patients tend to be of short term and are focused on the management of a specific disease. The patient-PCP relationship is not limited and of long-term, through which there is more knowledge of each other (Forrest et al., 2002). Since the patient-PCP relationship is mostly long-term, it is important that the patient can choose his or her PCP to develop a sustained partnership. Higher satisfaction with choice of PCP is associated with higher ratings by the patient regarding the patient-PCP relationship (Forrest et al., 2002). A survey among Norwegian habitants showed that patients that were listed with their first-choice PCP were more satisfied with the PCP's interpersonal skills, medical skills, referral practices and consultation lengths (Lurås, 2007). In addition, the study of Berendsen et al. (2009) reported that most of the patients thought that their PCP had an important role in making decisions with respect to the referral. A large number of them left their choices up to the PCP entirely, but others preferred their PCPs to inform them, advise them and consult with them, but let them make their own decisions (Berendsen et al., 2009).

On top of that, Kalda, Pölluste & Lember (2003) reported that patients who had registered with their personal PCP were more satisfied with different aspects of primary care than those who had not. When focusing on organizational aspects, patients were more satisfied with the location, cleanliness and comfort of the PCPs' clinic, access for making an appointment and the waiting time in contradiction with patients who had not registered with a personal PCP (Kalda et al., 2003). Self-registering had also positive effects on the patient-PCP interaction. These patients were more satisfied with the PCPs' punctuality, ability to understand, competence and explanations (Table 5). Another finding was that patients who had chosen their PCP on their own initiative were more likely to rate their satisfaction as 'extremely' satisfied or 'very much satisfied' concerning those aspects (Kalda et al., 2003). These findings suggest that self-registering, and thus giving patients some control by giving them a choice, has beneficial outcomes. It could be interesting for policies to support patients in making choices.

Satisfaction item	Patients who had registered with a personal PCP in percentage (n=675)	Patients who had not registered with a personal PCP in percentage (n=321)
Organizational aspects of care		
Location	72	64
Cleanliness and comfort of the clinic	71	58
Simplicity of access to appointment	75	63
Waiting time	62	55
Aspects of patient-PCP interaction		
PCP's punctuality	74	61
PCP's ability to understand	81	64
PCP's competence	71	63
Clarity of PCP's explanations	73	61
Overall satisfaction with PCP	77	50

Table 5. Comparison of patients who had chosen their PCP compared to patients who had not (Kalda et al., 2003).

However, there are stakeholders who believe that gatekeeping limits patient choice and should therefore be abolished. Moreover, there has been suggested that gatekeeping negates the person centred model, patient choice and shared decision making (Greenfield, Foley, & Majeed, 2016 as cited in Rotar, Van Den Berg, Schäfer, Kringos, & Klazinga, 2018; Health Consumer Powerhouse, 2017 as cited in Rotar et al., 2018). The study of Rotar et al. (2018) found a negative relation between shared decision making and gatekeeping systems, which would mean that PCPs as gatekeepers would make less shared decisions with patients. When observing each country individually, some countries deviated strongly from that finding (Rotar et al., 2018). For example, the Netherlands and UK that have typical strong gatekeeping systems, had the highest scores on shared decision making. The level of shared decision making in other gatekeeping systems, such as Spain and Denmark, was low. Causes of these different findings could potentially be related to the variation between countries in for example level of trust in their PCP, patient characteristics and beliefs about healthcare use (Rotar et al., 2018). When referring a patient, different considerations are taken into account, with patient preference and previous experience with specialist being the most important factors affecting PCPs decision on referrals. PCPs in countries with gatekeeping systems are more likely to always take into consideration patients' preference, travel distance, waiting time and costs. The PCPs from countries that have no gatekeeping system, are more likely to consider their previous experience with a specialist and comparative performance information (Rotar et al., 2018).

Trust and mutual liking

Trust is an important element of health care, since it is, among others, characterised by uncertainty and risk regarding the competence and intentions of the practitioner on whom the patient is dependent (Alaszweski, 2003). Therefore, trust indicates the positive expectations regarding both the competence of the practitioner and that the practitioner will work in the patient's best interest (Calnan, & Rowe, 2007). Gatekeeping arrangements place PCPs in the role of cost controller. This is not beneficial for the patients' trust in their physicians, since they trust their PCPs more than their health plans. Through gatekeeping, patients may see their PCP as agent of the health plan. Hindering the PCPs clinical roles with gatekeeping arrangements may cause displacing patients' mistrust from the health plans to their PCPs (Forrest et al., 2002). Nonetheless, Van der Schee, Braun, Calnan, Schnee & Groenewegen (2007) found other results. The study described public trust in health care in The Netherlands, England and Germany. Herein three quarter of the Dutch and English respondents trusted that the education and training of doctors in their country is one of the world's best, where only half of the German respondents agreed with the statement. When focusing on PCPs, the respondents of the three countries reported high trust in their PCPs. On a scale of 1-4, all the

countries had at least a rate of 3. This is remarkable, since England and The Netherlands have typical gatekeeping health care systems (Van der Schee et al., 2007).

On top of that, Grumbach et al. (1999) analysed the patients' trust and confidence in the PCP. The patients' ratings of their PCPs' pointed out high levels of trust, confidence and satisfaction. 85% of the study patients reported that they all or most of the time trusted their PCP to do handle in their best interest. 82% of the patients stated that the PCPs were well qualified to manage their care and 82% of the patients were satisfied with the PCPs (Grumbach et al., 1999). In addition, Berendsen et al. (2009) found that patients were more positive about the PCP than the specialist regarding empathetic and supportive contact subjects. Trust, confidence and satisfaction in relation to the PCP is influenced by referrals. Patients who needed referrals and were obstructed to get them, were much more likely to report low trust, confidence and satisfaction compared to patients who said they did not need referrals. Moreover, patients who needed referrals and reported that it was easy to get them gave comparable ratings as patients who did not need referrals regarding their trust, confidence and satisfaction (Grumbach et al., 1999). Besides, patients who chose their physicians and who had longer relationships with their physicians were less likely to report low ratings of trust, confidence and satisfaction. The same for patients that reported that their physicians were more available to answer questions (Grumbach et al., 1999). The study of Lurås (2007) showed that the first choice of PCPs were made based on the fact that patients trusted them and felt confident about the way their health problems were handled, which could be caused by their long relationship (Lurås, 2007). Other studies have shown that low ratings on trust, confidence and satisfaction are associated with important outcomes, such as poorer adherence to treatment and worse health status outcomes in chronic diseases (Kaplan, Greenfield, & Ware, 1989 as cited in Grumbach et al. 1999; Safran et al., 1998 as cited in Grumbach et al., 1999). Patients value the first contact and coordinating role of PCPs, but referral policies that are viewed as restrictive undermine patients' trust and confidence in their PCP (Tabenkin et al., 1998; Grumbach et al., 1999).

Since the patient-PCP relationship is of such importance, research is done on how to improve the patient-PCP relationship. Evidence is found that continuity with a PCP leads to increased knowledge and trust between a patient and PCP. This increases knowledge and trust within the relationship which can lead to more easiness in managing medical problems via PCP. Hereby hospitalization or emergency department visits can be avoided (Thom, Ribisl, & Stewart, 1999 as cited in Mainous et al., 2001). In addition, Rodriguez, Rogers, Marshall & Safran (2007) found that higher PCP visit continuity increases patient satisfaction regarding health promotion support by PCP, PCP's knowledge of the patient and patients' willingness to recommend their PCP. In other words, PCP visit continuity is important for the experience of the patient (Rodriguez et al., 2007). Mainous et al. (2001) also found a significant relation between the importance of seeing one's PCP and the trust in their PCP in the UK and the US. Furthermore, the length of time with their PCPs increased the patients' trust. Additionally, the study reported that how older the patient was, how higher the ratings of trust. There is a general agreement that trust within the patient-PCP relationship is important for high-quality health care. The study suggests to improve continuity to increase trust, for example by financial incentive as lower co-payments to patients when the PCP is visited, or allowing patients to keep their PCP when they change health plans (Mainous et al., 2001).

Interaction

Communication between patient and PCP is of importance. According to Bjerrum & Sørensen (1992) as cited in (Lurås, 2007), the most common reason that patients were dissatisfied with the quality is a lack of communication. A reason could be that the lack of communication has an influence on the patients' experience of time (Lurås, 2007). The quality of communication can be determined by always taken seriously, to be given a good explanation of the treatment, to be given enough time and attention, and to have the PCP understand the patient's concerns (Kulu-Glasgow et al., 1998). The study of Kulu-Glasgow et al. (1998) stated that the value-expectancy score for quality of

communication at the specialist is higher than that for the PCP among self-referring patients, whereas for PCP-referred patients there are no significant differences (Kulu-Glasgow et al., 1998). Furthermore, a survey among Norwegian habitants that visited their assigned PCP after the reform, concluded that around 84% felt that the PCP took their questions and problems seriously (Lurås, 2007). On top of that, the patients of the study of Berendsen et al. (2009) were almost all satisfied with the PCPs' attitude. Schellevis, Westert & De Bakker (2005) analysed the patients' views on the organization and the content of primary care in 2001. Their results are presented in Table 6. The findings show that 91% of patients felt that the PCP was taking them seriously and 95% thought that the PCP explained well. The results also show that the PCP was willing to do extra effort regarding seeing the patient, namely 84% of the patients reported that the PCP was prepared to visit at home and 87% of the patients reported that their PCP was accessible in the evening or night. Moreover, the patients thought that the PCP took enough time for a consult (Schellevis et al., 2005).

Statement	Agreement in percentage (n=8007)
My PCP takes me seriously	91
My PCP explains well what the matter is with me	95
My PCP is prepared to visit me at home	84
My PCP takes enough time	89
My PCP is accessible in the evening/night	87
Once in a while I am worried about the accessibility in the evening/night	12

Table 6. Patients' views on the organization and the content of general practice care in 2001 (Schellevis et al., 2005).

Eide, Graugaard, Holgersen & Finset (2002) analysed interaction between patient-physician. They found that it is of importance to give the patient information about the rapport by spending time on informal and non-medical talk. This gives the patient the impression that the physician sees him or her as a person and not only as a medical case. Which the study also recommends is to avoid non-medical talk during the examination. At that moment, the patient appreciates factual information about findings, plus reassurances of the findings when the examination is done. The study did not find an overall association between patient satisfaction and length of consultation (Eide et al., 2002).

On the other hand, there is also the PCP view of point. Nearly all participated PCPs of the study of Wammes et al. (2014) stated that patients experience health care as a right. According to the PCPs, this leads to unnecessary care. A comparable number of PCPs reported that patients have a strong need for an explanation and certainty, which also leads to unnecessary care. Additionally, two-thirds reported that when patients really wanted to be referred, they would initiate the referral to maintain the relationship with the patient. The PCPs found it difficult to deny demanding patients' access to specialist care, even if they did not think the referral was needed. The results, therefore, imply the PCP's decisions as demand-satisfying. This could cause overdiagnosis and overtreatment, instead of avoiding it (Wammes et al., 2014). Little et al. (2004) also found that perceived pressure from patients is a strong independent predictor of whether the PCP examines, prescribes, refers or investigates. They stated that PCPs should avoid patient expectations, so unnecessary use of resources and iatrogenesis can be limited (Little et al., 2004).

Technical quality

The technical quality reflects the expertise of the PCP and the outcome of the service of the PCP (Dagger et al., 2007).

Expertise

The study of Grumbach et al. (1999) shows that majority of the patients valued the role of PCP as a source of first-contact care, namely 94%. They also valued the role as a coordinator of referrals. 89% of the patients acknowledged that it was helpful that the PCP participates in decisions about specialty referral. When asking of whom the patient prefers to seek first-contact, 75-91% of patients preferred to visit their PCP first, depending on their specific medical problems (Figure 3) (Grumbach et al., 1999).

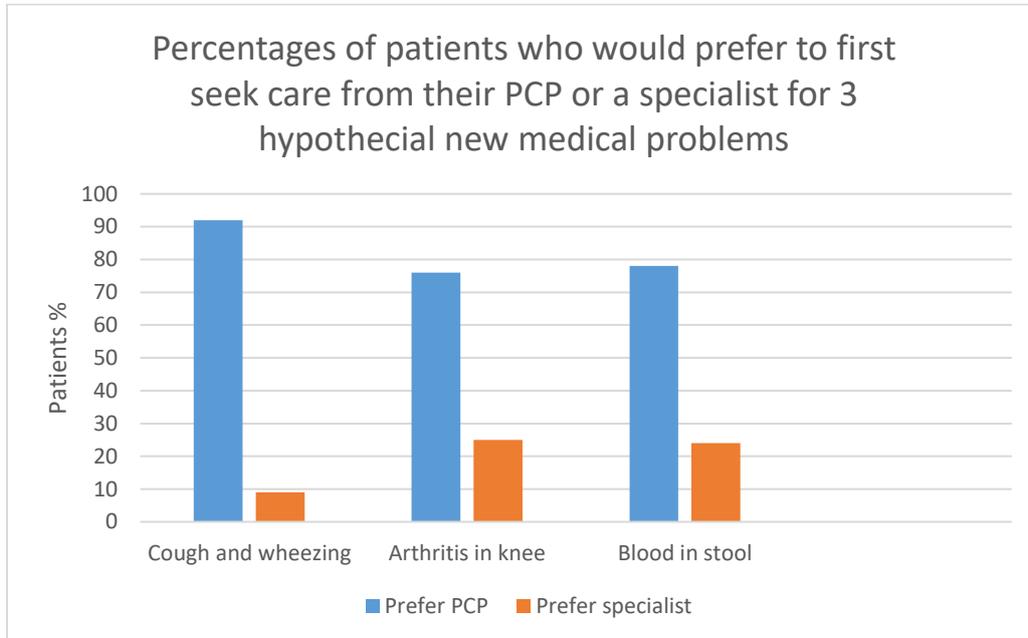


Figure 3. Preference for Primary Care Physician or Specialist as First-Contact Physician for Selected Medical Problems (Grumbach et al., 1999).

However, some studies state that patients have a high level of referral expectation (Tabenkin et al., 1998). Preference for self-referral has several reasons. According to Lin et al. (2000), there were three primary reasons why patients sought for specialist referral. Those reasons were need for reassurance, having previously seen a specialist for the health concern, and belief that the PCP does not have sufficient expertise to handle the concern. However, the study shows that most patients thought it was useful to see their PCP before being referred to a specialist. Namely 74% of the patients that were referred agreed with visiting the PCP first and of the patients that were not referred, 54% agreed (Lin et al., 2000). Kulu-Glasgow et al. (1998) did also research concerning reasons of the patients that are considered to be important in self-referral. They found ten 'most important' reasons of self-referral, that are presented in Table 7. The most commonly given reasons for self-referral were the need of help of a typical specialist and more facilities or services provided by the specialist (Kulu-Glasgow et al., 1998).

Reason	Agreement in percentage
Need of typical specialist help; PCP wasn't suitable for the problem	58.5
More facilities at the specialist	58.5
Time-gain, did not need to visit the PCP first	48.8
Finance, did not need to pay for a consult to the PCP	46.3
Habit, mostly makes an appointment with the specialist without consulting PCP	46.3
PCP would have referred anyway	41.5
Has more confidence in the specialist	36.6
Needed medical help directly	29.3
To soothe the mind reassurance	17.1
Could visit the specialist on the same day	17.1

Table 7. Top ten reasons for self-referral: percentage of self-referring patients who agreed that the specific reason leads to skipping of PCP (Kulu-Glasgow et al., 1998).

Kulu-Glasgow et al. (1998) found a clear trend in the medical complaints of self-referring and PCP referred patients. Patients that tried to save time, had medical complaints for which they expected to end up at the specialist's anyway and therefore self-referred to a specialist. Patients that were referred to a specialist by their PCP, had often complaints whereby they did not know how to categorize the medical complaint. Therefore they needed the advice of their PCP. Most commonly, patients had medical complaints which might be considered by the patients as less 'typical' to a specialist (Kulu-Glasgow et al., 1998). Besides, Gross, Tabenkin & Brammli-Greenberg (2000) found that high percentages of preference for self-referral among their study population were a result of not having a permanent PCP. The respondents that were unsure whether they preferred self-referral or PCP referral, eventually went to their PCP when they needed a referral to a specialist (Gross et al., 2000).

Outcome

The study of Bowling & Redfern (2000) stated that PCPs undertake investigations prior to referral and most of the patients experienced the pre-referral examination as thorough. Most PCPs that participated in this survey reported to have equipment in their practices and were able to perform minor surgery. They also reported having direct access to services, hospital facilities and specialist clinics. These possibilities were implemented to improve accessibility for patients and to develop closer relationships between PCPs and specialists. Another reason for implementing these possibilities was to discourage the number of reattendances by outpatients (Bowling et al., 2000). However, specialists reported that that the PCP could have done more prior to referring for over 20% of the patients, such as tests and examinations. Additionally, more than 20% of the specialists' reported that PCPs carried out inadequate examinations or treatment prior to referral. On the other hand, most of the PCPs felt that they could not have given the patients the care, treatment and investigations that they receive in the hospital. Besides, most referrals were rated by specialists as appropriate (Bowling et al., 2000).

Rosemann, Wensing, Rueter & Szecsenyi (2006) aimed at describing the experiences of specialists, PCPs and patients with referrals from primary care to specialists. Table 8 shows the outcomes of the study. The specialists thought that the referrals by the PCP were clear (95%) and were appropriate (91%). The PCPs gave the patients adequate information on their referral (87%). However, the specialists were somewhat less satisfied regarding the information provided on the patients' medical history (61%) and prescriptions (48%) (Table 8) (Rosemann et al., 2006). Currently, this problem

might be less due to the invention of electronic health records.

Statement	N (agree)	Percentage (agree)
Clear referral goal by PCP	398	95
Adequate information on the patients' medical history by PCP	261	61
Adequate information on prescriptions by PCP	208	48
More information on the patient desired	93	22
Adequate information to patient on the referral by PCP	376	87
I would have preferred to refer the patient	10	2
Referral was appropriate	390	91
Patient should have been referred earlier	46	11

Table 8. Consultants' experience (n=430) (Rosemann et al., 2006).

A result of the study of Rosemann et al. (2006) is that patients had positive experiences in the majority of the referrals. Table 9 shows the experiences of the patients regarding their visit to the PCP. The patients were mostly satisfied with the referral (83%) and felt that the specialist was well informed by the PCP (81%). Only 4% of the patients thought that their PCP should have prepared them better on the referral. The study concludes that the patients, PCPs and specialists value the referrals from primary care to medical specialists. On top of that, the patients that participated were most positive if the PCP had initiated the referral. This supports the gatekeeper role of the PCP (Rosemann et al., 2006). According to Kalda et al. (2003) an important factor that influences satisfaction of service outcome is patient's choice. Patients that had chosen their PCP on own initiative, were more satisfied of the effectiveness of prescribed therapy, namely 67% against 58%. Regarding the availability of modern equipment, there was not a huge difference. Patients who had chosen their PCP were satisfied for 42% and who had not were satisfied for 37% (Kalda et al., 2003).

Statement	N (agree)	Percentage (agree)
Expectations		
Detailed information about my disease	294	66
More diagnostic certainty	356	80
Exclusion of serious illness	275	62
Information about treatment options	255	57
Recommendation for specific treatments	260	59
Specific treatment is provided	238	53
Experiences		
Consultant was well informed by PCP	360	81
Friendly treatment in consultants' practice	351	79
PCP received adequate information from consultant	333	75
I received examinations or treatments which had not been mentioned by my PCP	63	14
I was overall satisfied with referral	371	83
Treatment changed due to referrals results	198	44
Referral was unnecessary	26	6
I received important information	147	33
My PCP has received important information	329	74
My PCP should have prepared me better on the referral	16	4
Specialist should have explained me more	161	36

Table 9. Patients' expectations and experiences (n=446 referrals) (Rosemann et al., 2006).

Administrative quality

Timeliness

As elaborated by the multi-dimensional hierarchical model of perceived service quality, timeliness describes the factors involved in arranging to receive medical services, such as waiting lists and waiting time (Dagger et al., 2007).

Some data suggest that patients have a high level of referral expectation. Failure to meet these expectations is associated with patient dissatisfaction and desire to change to another healthcare plan (Grumbach et al., 1999; Lin et al., 2000). Many PCPs feel that patients view them as opponents and that regulation of referrals might negatively affect patient-physician communication (Lin et al., 2000). The study of Grumbach et al. (1999) stated that 23% of their study population thought that their PCP interfered with their ability to see a specialist. However, among the patients who thought they needed referrals from the previous group, 82% reported that it was easy to get referrals and only 12% reported that it was difficult. The study showed that each patient's own experience with a needed referral was highly correlated with referral barriers. Patients who needed referrals and reported that it was difficult to get one, also agreed with the statement that their PCP interfered with access to specialists (Grumbach et al., 1999).

According to Berendsen et al. (2009), the waiting time in the PCPs office was seen as least of importance by the patient. However, Kulu-Glasgow et al. 1998 found that one of the reasons to skip the PCP was to avoid time-loss (48.8%). Berendsen et al. (2009) found that almost all patients thought it was important that the PCP referred quickly and appropriately. Patients appreciated it when the PCP was able to shorten time between the PCPs appointment and the first visit to the specialist. The study reported that many patients had negative experiences with long waiting times for diagnostic investigations or for procedures and long waiting times at the specialist. However, a citation of a patient shows that seeing the PCP was quick (Berendsen et al., 2009). Willingness to wait is also influenced by choice. Patients prefer shorter waiting times to see their PCP. Nevertheless, this is in many cases outweighed by the preference of choice. Herein the choice is aimed at the time of seeing and visiting the PCP of own choice, since they are more valued. Choice of time is especially important for patients that work. Choice of PCP is more important for women, the elderly and those with long-standing physical illnesses (Rubin, Bate, George, Shackley, & Hall, 2006).

Operation

The operation defines the core service production through the general administration of the clinic and the coordination, organization, and integration of medical care (Dagger et al., 2007).

One of the purposes of the study of Berendsen et al. (2009) was to explore experiences and preferences of patients regarding the transition between primary and secondary care. The study shows that the PCP tended to spend the necessary time. Moreover, it was valued when the PCP stayed in contact with the patients after the referral. On top of that, patients preferred receiving information about the outcome from their PCP (Berendsen et al., 2009). The study also reported that a considerable number of patients were dissatisfied with the length of time it took for the specialist to give information to the PCP. In addition, some had the impression that the information the PCP received was incomplete. On the other hand, some patients were quite satisfied with PCP-specialist communication. However, the patients of the study think that it should be improved (Berendsen et al., 2009). Additionally, Ghandi et al. (2000) analysed the communication between physicians. One of the problems was lack of timeliness of information between physicians. Namely 48% of the specialists and 50% of the PCPs were dissatisfied regarding timeliness of information exchange. Besides, 28% of the PCPs and 43% of the specialists were dissatisfied with the received report of the other (Ghandi et al., 2000).

Bowling et al. (2000) analysed the patterns and process of care for the referral of outpatients. The study shows that most patients reported that their PCPs had examined them thoroughly before referral. 75% of the patients was referred by their PCP. For 43% of the patients the interval between referral and being seen in the outpatient department was at least one month but less than three months. For 35% of the patients the interval was less than one month. A large proportion of the PCPs of the study population reported to receive inadequate information about patients from specialists. Some of them also reported long delays in communications from hospitals. On the other hand, 38% of the specialist reported that they had received inadequate information and 42% reported inadequate investigations/treatment carried out by PCP (Bowling et al., 2000).

On the other hand, Kroneman et al. (2006) found that patients with direct access to a specialist were more satisfied with their PCP than patients who had to visit a PCP first. An explanation was their freedom of choice. The higher satisfaction of patients regarding their PCP had mainly to do with organisational aspects. For example, the patients can be less satisfied when they 'blame' the PCP for needing a referral or that in gatekeeping countries the PCP is less patient-oriented. In countries with a direct access system, PCPs have competition from the specialists. This can lead to more attention for patients wishes and needs instead of only their medical complaint (Kroneman et al., 2006). This finding is in contradiction with the results of Rotar et al. (2018), since they stated, as said before, that PCPs in countries with gatekeeping systems were more likely to always take into account patients' preference. Kroneman et al. (2006) also stated that patients from direct access and gatekeeping systems are even satisfied regarding patient-PCP communication and the technical quality of care of the PCP.

Another study that did research to coordination of care between PCP and specialists was done by Malley & Cunningham (2008). They reported that 46% of their respondents felt that their PCP always seemed informed about care from specialists and 31% usually or almost always. In addition, 62% of the respondents reported that their PCP talked with them concerning their most recent visit with the specialist. Patients who saw the same PCP for most primary care visits were more likely to report that their PCP was informed about the care received from specialists. In addition, these patients were also more likely to report that the PCP discussed what happened at the last specialist visit. Moreover, patients that were referred by their PCP had the feeling that their PCP was more informed and up to date concerning received specialist care. They were also more likely to report that the PCP discussed the specialist visit. In short, continuity of visits with the same PCP and referral initiated by PCP were independently associated with higher ratings of care coordination. Besides, Malley et al. (2008) state that the patient rate the coordination of care between PCP and specialist much better when the PCP is the referral source (Malley et al., 2008).

Discussion and conclusion

The aim of this study was to address gatekeeping in primary care and its effect on patient satisfaction. A systematic literature review of the current literature available was performed. This study discussed three different dimensions of quality that can influence the overall service quality, and thus patient satisfaction. Core themes of these dimensions were applied to PCPs, which indicated the patients' view of gatekeeping by PCPs.

Interpersonal quality

This review shows that interpersonal quality is important, highlighting the main elements choice, trust and interaction. There are multiple studies discussing the influence of gatekeeping by PCP on the satisfaction of the patient. Most of the studies have positive results. These results showed especially that choosing your own PCP had positive effects on patient satisfaction for both PCP as managed health care (Forrest et al., 2002; Lurås, 2007; Kalda et al., 2003). Besides, patients from countries with typical gatekeeping systems were more positive about the referral system than patients with a direct access system (Kulu-Glasgow et al., 1998). A study that was conducted in 32 countries found that PCPs in gatekeeping systems are more likely to always take into account patient's preference, travel distance, waiting time and costs (Rotar et al., 2018). These results could imply that patients are more positive about the gatekeeping system when they live in a country where gatekeeping is maintained. Therefore familiarisation with gatekeeping could increase patient satisfaction regarding the referral system. Moreover, the positive effects provided by patients choosing their own PCP is an interesting finding. It seems important to give patients this freedom of choice, and maybe they could be supported herein to make the right decision.

In relation to trust, the review shows that gatekeeping did not have a huge negative influence. Through gatekeeping, there is a possibility that trust of the patient in their PCP can be undermined (Forrest et al., 2002). However, multiple studies showed that this is not the case. A study that was done in typical gatekeeping countries showed high trust in PCPs (Van der Schee et al., 2007). In addition, more studies found high satisfaction and trust rates regarding PCPs (Grumbach et al., 1999; Berendsen et al., 2009). A factor that seems associated with higher trust is longer patient-PCP relationships. Therefore, it is recommended to encourage to keep a relationship with one PCP (Lurås, 2007; Grumbach et al., 1999; Mainous et al., 2001; Rodriguez et al., 2007; Thom et al., 1999). Policymakers could support longer relationships between patient-PCP, since it probably stimulates patients' trust in their PCPs. Besides, the studies seem to suggest that gatekeeping has no negative influences on trust. An interesting finding, since it might be thought the other way around.

When focusing on interaction, most of the patients are satisfied. This is induced by the PCPs attitude, the feeling of patients that they are being taken seriously and that the PCP is willing to do extra effort regarding seeing the patient (Lurås, 2007; Schellevis et al., 2005; Berendsen et al., 2009). On the other hand, PCPs feel sometimes pressure from their patients. Therefore, some PCPs initiate referrals to maintain a good patient-PCP relationship (Wammes et al., 2014; Little et al., 2004). This needs to be taken seriously, since it can contribute to inefficient health care. To have a good relationship between patient and PCP, both sides need to feel confident and taken seriously. These results suggest that patients are satisfied with the interaction, but for PCPs it could be improved. Patient pressure as influencer on referrals is an essential finding, because it can hinder the goal of gatekeeping to avoid unnecessary care. Further research could elaborate more on this aspect.

Technical quality

The technical quality is especially displayed by reasons of patients for wanting a referral. The included studies show that the PCP is valued as a source of first-contact care and coordinator of referrals (Grumbach et al., 1999; Berendsen et al., 2009). One of the main reasons patients

requested a referral, was due to reassurance, facilities or expertise. However, a large proportion thinks it useful to see their PCP first. A trend was observed, namely patients that wanted to save time and were familiar with the medical complaint preferred self-referral to a specialist. Patients that were not familiar with the medical complaint or thought it was not typical for a specialist, went to their PCP first (Kulu-Glasgow et al., 1998; Lin et al., 2000, Gross et al., 2000). This trend seems logic, because the PCP's advice can be helpful when there is no knowledge of the complaint. On the other hand, it can be time consuming when patients know what the matter is and to which specialist they need to go. The findings suggest that PCPs are seen as important for first contact care, especially when medical complaints are unknown to the patient. Therefore, the referral system, and thus gatekeeping system, seems attractive for coordinating care.

The outcome of the service of the PCP is an important core theme. In this study, the outcome is analysed through the PCP, patient and specialist point of view. The PCPs state to have equipment in their practice and most of the patients experience the examination as "thorough". However, not all specialists are completely satisfied with the service of PCPs. According to specialists, elements that need improvement are information on patient's medical history and examination. Although they think most referrals are appropriate. Patients were mostly satisfied with the referral and thought that the specialist was well informed by the PCP (Bowling et al., 2000; Rosemann et al., 2006). Additionally, choice had a positive influence on the satisfaction regarding outcome (Kalda et al., 2003). The patient, PCP and specialist value the referrals which supports the gatekeeping role (Rosemann et al., 2006). These findings are useful since it acknowledges that referral by PCPs are most of the time appropriate. However, it seems that communication or teamwork between PCP-specialist could be improved. This result is of importance, because improving the PCP-specialist relation could improve health care service and therefore patient satisfaction.

Administrative quality

In general, patients agree that it is feasible to obtain a referral (Grumbach et al., 1999). Willingness to wait is also found to be influenced by choice. Patients are more willing to wait for the PCP of their choice (Rubin et al., 2006). Regarding transition between primary care and secondary care, it was valued if the PCP stayed in contact with the patient (Berendsen et al., 2009). On the other hand, the communication between PCP and specialist can be improved (Berendsen et al., 2009; Ghandi et al., 2000; Bowling et al., 2000; Malley et al., 2008). There are contradicting studies concerning referral in direct access systems and gatekeeping systems. For example, Kroneman et al. (2006) found that patients in a direct access system are more positive about their PCP than patients in a gatekeeping system. On the other hand, Rotar et al. (2018) and Malley et al. (2008) found contradicting results. The main interpretation of these findings, is that herein also is suggested to improve communication between PCP-specialist. In addition, the control of choice by patients is again seen as beneficial. This finding is important for policy makers, since they can support patients in choosing their PCP and avoid hindering restrictions.

Strengths and limitations

Due to the critical appraisal, the risk of using studies with a weak methodology as scientific source are most likely excluded. This study tried to use more than one reference per scientific statement in order to minimize the risk of weaker studies influencing the results. The topic of this review fills an information gap, namely the effect of a gatekeeping system on patient satisfaction. This could be of use to provide information for improvement of gatekeeping systems. Improvements can be based on factors that have a huge influence on patient satisfaction. Filling the named literature gap is important for policy makers, since they can adapt the maintained system in accordance with these results. In addition, gatekeeping systems and direct access system could be slightly compared. Although this is difficult since systems in different countries are not the same.

This study aimed to summarise the effect of the gatekeeping function of primary care on patient satisfaction. It acknowledges that the term, implementation and effect is different in various countries, under different healthcare models, and with different health insurance schemes. This makes comparison between studies challenging. Most of the studies included in this review are based in the US, UK or the Netherlands. Therefore, the review could reflect their systems. Furthermore, the scarcity of randomised controlled trials made it challenging to acknowledge the observed results merely to gatekeeping, because many other factors could have affected the outcomes. Since every country has a different health care system with other values, it is difficult to simulate within these systems. Besides, it is not possible to move patients to other countries for a research, which makes carrying out a randomised control trial impossible. Other factors that could have influenced the results are the type of medical complaint, age, gender, insurance, socioeconomic status, employments, etcetera. Additionally, it is important to note that this study may have a 'western' or even Dutch view on the gatekeeping system, as the author is from the Netherlands. Finally, the findings are described in separate dimensions of quality. Probably there is a considerable inter-relation between these dimensions, which can be a significant overlap. For example, technical quality with especially 'expertise' can be related with 'patient-PCP relationship'. Dimensions can also be related with other outcomes, such as 'service outcome' and 'health outcome'. Moreover, it is likely that there is an association between patient satisfaction, gatekeeping and health care use. However, this study did not achieve to get a clearer understanding of these inter-relations.

Future research and policy

Interpreting these findings to policy should be done with caution. The gatekeeping system can seem attractive to policy makers concerning reducing costs and use. However, as acknowledged before, in every context the gatekeeping system will work differently due to differences in for example culture. If implementing this system is a good idea and how it should be implemented, should be thoroughly analysed first.

Future research may focus individually on each dimension of the 'multi-dimensional hierarchical model of perceived service quality'. Hereby more detailed information could be found regarding the influence of gatekeeping on these forms of quality. For example on administrative quality, support that PCPs receive from their manager can be analysed, since this could influence the support the PCP provides to patients. If this appears to be true, ways to improve supporting PCPs could be invented. An example could be providing a second opinion when the PCP is not sure whether to refer or not. In this study, the dimension environment quality is not analysed. Future research could strive for analysing environmental features at the PCP's practice that shape patients service perceptions. Research could be done to which elements provides the feeling of trust and support in a PCP's practice, so patients could feel more confident about their PCP. This could result in improvement of the patient-PCP relationship, which is beneficial for the gatekeeping system. Another interesting study could be analysing what other factors influence patient satisfaction and how much this contributes to patient satisfaction, such as gender and age. Policy makers can use this information to discuss solutions of making the gatekeeping system attractive for all. For example, if women prefer to go to a specialist immediately, factors that influence this preference could be analysed. Based hereon, ways to stimulate women to contact first their PCP could be found. Another future research could contribute to analysing choice of patients. This review shows that giving patients the control over choosing their PCP has beneficial outcomes. For example, patients that had chosen their own PCP reported higher rates of trust and confidence. This could mean for policy makers that they should give patients the control of choosing their own PCP. Policymakers or organisations could support the patients in making this choice, for example by providing information about the PCPs, which could be a topic for future research. Ideas could be that patients can rate their PCP and that this information could be made available to others. In this way, patients could decide which PCP fits more by their needs and values. Another option is that PCPs could give information on high schools

about their practice. Via this way also younger patients get more information regarding PCPs. They would be able to switch PCPs if they do not have a great relationship with the family physician. At last, communication between specialist and PCP could be observed. Finding ways to improve it could be elaborated. This study showed that the communication and teamwork between PCP-specialist can be improved, which is of importance to encourage better health care and thus also patient satisfaction. For example, the PCP could be stimulated to refer to a known specialist, if the medical complaint is appropriate for that specialist. Longer PCP-specialist relationships might be developed, which could have positive influences just as with the patient-PCP relationship.

Conclusion

To recall, the main question of the study is: 'What is the effect of primary care physicians as gatekeepers on patient satisfaction according to the literature?'

Results regarding interpersonal-, technical- and administrative quality are found. These results should be analysed critically and be known as different for each country and system. The study showed that communication within health care is of great importance, and that it is possible to find ways to improve the PCP-specialist communication. Additionally is shown that long relationships between patient-PCP and choice of patient are of value. These results could contribute in further health care policy to improve health care service by PCPs. In total, 26 references are used for the results of this study. Limitations were that the literature research could be too narrow and that the effects of gatekeeping are influenced by other factors.

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Appendix

Planning

Week	Activity	Extra
Week 1	Literature research.	
Week 2	Literature research.	
Week 3	Write results.	Join thesis ring.
Week 4	Critical appraisal of articles, making overviews of used articles and finish results.	Send concept until results to supervisor.
Week 5	Write discussion and conclusion. Use feedback to improve thesis.	Send draft of thesis to supervisor. Deliver some pages for thesis ring and join thesis ring.
Week 6	Write abstract and improve thesis.	
Week 7	Write abstract, improve thesis and prepare presentation.	
Week 8	Finish thesis and prepare presentation.	Send final thesis to supervisor. Give presentation on the 3th of July.

Table 4. Critical appraisal with TAPUPAS

Study	TAPUPAS limits
Alaszweski (2003)	No limits.
Calnan et al. (2007)	No limits.
Berendsen et al. (2009)	Transparency: 7/10, due to need for a bit more background information. Purposivity: 7/10, due to sample that consisted of less participants in contradicting with the other studies used.
Bowling et al. (2000)	Transparency: 7/10, missing theoretical framework/not enough background. Accuracy: 7/10, examples of discussion could have been included.
Eide et al. (2002)	Transparency: 7/10, missing theoretical framework/not enough background. Accuracy: 7/10, examples of discussion could have been included. Purposivity: 7/10, small sample in accordance with other studies.
Ferris et al. (2001)	Transparency: 7/10, missing theoretical framework/not enough background. Accuracy: 7/10, examples of discussion could have been included.
Forrest et al. (2002)	Accuracy: 7/10, examples of discussion could have been included.
Ghandi et al. (2000)	Transparency: 7/10, missing theoretical framework. Accuracy: 7/10, examples of discussion could have been included.
Gross et al. (2000)	Accuracy: 7/10, examples of discussion could have been included.
Grumbach et al. (1999)	Transparency: 7/10, missing theoretical framework/not enough background. Accuracy: 7/10, examples of discussion could have been included.
Kalda et al. (2003)	Transparency: 7/10, missing theoretical framework. Accuracy: 7/10, examples of discussion could have been included.

Kroneman et al. (2006)	Transparency: 6/10, missing theoretical framework/not enough background and missing detailed size of sample. Now only the countries that are analysed are reported.
Kulu-Glasgow (1998)	Accuracy: 7/10, examples could have been included. Purposivity: 8/10, more specialists could have participated.
Lin et al. (2000)	Transparency: 7/10, missing theoretical framework/not enough background.
Little et al. (2004)	Transparency: 7/10, missing theoretical framework/not enough background. Accuracy: 7/10, examples could have been included.
Lurås (2007)	Transparency: 7/10, missing theoretical framework/not enough background.
Mainous et al. (2001)	Accuracy: 7/10, examples could have been included.
Malley et al. (2008)	Transparency: 7/10, missing theoretical framework/not enough background. Accuracy: 7/10, examples could have been included.
Rodriguez et al. (2007)	Accuracy: 7/10, over time results could have been provided to give more insight.
Rosemann et al. (2006)	Transparency: 7/10, missing theoretical framework/not enough background. Accuracy: 7/10, examples could have been included. Purposivity: 7/10, PCPs were all from Marbach which makes it a less generalizable sample.
Rotar et al. (2018)	Transparency: 6/10, missing theoretical framework/not enough background. Use of QUALICOPC and addressing research questions are clear, but more detailed information could have been given. Accuracy: 7/10, findings are credible but more depth would have made the study better.
Rubin et al. (2006)	Transparency: 7/10, the three attributes identified through a review of existing literature and discussion with patients and local primary care collaborative could have been elaborated more. Accuracy: 7/10, discussion between patients and local primary care collaborative could have been implemented.
Schee et al. (2007)	No limits.
Schellevis et al. (2005)	No limits.
Tabenkin et al. (1998)	Accuracy: 7/10, findings are credible but more depth would have made the study better. Purposivity: 7/10, sample consists of only those who visit the clinics, with emphasis given to frequent visitors.
Wammes et al. (2014)	Transparency: 7/10, explanation of why they used that specific previously conducted American questionnaire is missing. Accuracy: 7/10, findings are credible, but examples could have been implemented.

The critical appraisal is done with the tool TAPUPAS. TAPUPAS criticizes studies on six elements, namely transparency, accuracy, purposivity, utility, propriety and accessibility. The manual of this tool can be found in the article of Pawson, Boaz, Grayson, Long & Barnes (2003). The included studies are all of fair quality, however most of them could have provided a theoretical framework on which they based their studies. Another general element was that the studies could have implemented more examples of answers on questions or could have made their questions in a way that the

respondents could have answered more personal. This could provide more specific answers, which could help to visualize the situation and reasons for the respondents' answers.