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How physician affective communication skills are related to patient characteristics and outcomes

Empathy and self-awareness in the spotlight

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How physician affective communication skills are related to patient characteristics and outcomes : Empathy and self-awareness in the spotlight

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UNIVERSITÉ DE NEUCHÂTEL

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Le doyen
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Abstract

Empathy is a central element of patient centered-care and therefore believed to improve patient outcomes. Empathy consists of multiple components (cognitive, affective, and behavioral), which play together in an interaction between the physician and a patient. Physician and patient characteristics affect empathy in the specific interaction. Empirical results on the effects of empathy on patient outcomes are ambiguous and incomparable, because studies mostly measure only one component of empathy in relation to patient outcomes or physician and patient characteristics.

Study 1 addresses the research question whether different components of empathy are related patient outcomes and patient characteristics. To do we videotaped general practitioners with a maximum of 5 of their patients in their medical practices. We assessed different physician empathic components (cognitive, affective, and behavioral) using different measures for each component as well patient outcomes (satisfaction, trust) and characteristics (general health status) through self-evaluation. Results indicate that different components of empathy are related differently to patient outcomes and that using different measures influences our study results. Patient characteristics are related to all empathic components.

Self-awareness, as the physician's skill to be aware of one's own emotional experience, is believed to be a beneficial antecedent of empathy and therefore an important affective physician communication skill. However, research on the relationship between self-awareness and empathy is extremely scarce.

Study 2 investigates the relationship between self-awareness and empathic behavior when considering patient communication style. Simulated patients served as targets for medical students whose task was to lead a medical consultation with the simulated patients. We manipulated patient communication style as either demanding or neutral to see whether physician self-awareness was related to empathy depending on patient communication style. Physician self-awareness and empathy (cognitive, affective, and behavioral) was assessed using medical student's self-evaluations. Results indicate that self-awareness was significantly related to behavioral empathy, however, not clearly in the direction we expected.

Global results are integrated in existing theories of physician patient communication. Based on the empirical results conceptual and methodological issues of empathy are discussed.

Key words: affective communication skills, empathy, self-awareness, patient outcomes

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Table of contents

1 INTRODUCTION 1

2 PATIENT-CENTERED CARE 2

2.1 DEFINING PATIENT-CENTERED CARE 4
2.2 EFFECTS OF PATIENT-CENTERED CARE 8

3 THE CONCEPT OF EMPATHY 11

3.1 COGNITIVE EMPATHY 13
3.2 AFFECTIVE EMPATHY 14
3.3 BEHAVIORAL EMPATHY 16
3.4 CLINICAL EMPATHY: A COMPREHENSIVE MODEL 17

4 EMPIRICAL RESEARCH ON CLINICAL EMPATHY 22

4.1 MEASURING CLINICAL EMPATHY 22
4.2 CLINICAL EMPATHY AND PATIENT OUTCOMES 24
4.2.1 COGNITIVE EMPATHY AND PATIENT OUTCOMES 24
4.2.2 AFFECTIVE EMPATHY AND PATIENT OUTCOMES 25
4.2.3 EMPATHIC BEHAVIOR AND PATIENT OUTCOMES 26
4.3 THE INTERRELATION BETWEEN EMPATHIC COMPONENTS 27
4.6 EFFECTS OF ANTECEDENTS ON CLINICAL EMPATHY 28

5 SELF-AWARENESS AS AN ANTECEDENT OF EMPATHY 31

5.1 DEFINING AND MEASURING MINDFULNESS AND SELF-AWARENESS 32
5.2 EFFECTS OF PHYSICIAN SELF-AWARENESS IN THE MEDICAL ENCOUNTER 34
5.3. EFFECTS OF SELF-AWARENESS ON EMPATHY 35

6 SUMMARY OF RESEARCH QUESTIONS 37

7 ANALYZING THE RELATIONSHIP BETWEEN DIFFERENT COMPONENTS OF CLINICAL EMPATHY AND PATIENT SATISFACTION, TRUST, AND PATIENT HEALTH STATUS - STUDY 1 38

7.1 METHOD 39
7.1.1 PARTICIPANTS 39
7.1.2 PROCEDURE 40
7.1.3 MEASURES 40
7.2 RESULTS 45
7.3 DISCUSSION 48
7.3.1 LIMITATIONS 52
7.3.2 PRACTICE IMPLICATIONS 52

8 IS SELF-AWARENESS USEFUL TO FOSTER EMPATHIC COMMUNICATION WITH PATIENTS? STUDY 2 53

8.1 METHOD 54
8.1.1 PARTICIPANTS 54
8.1.2 PROCEDURE 54
8.1.3 MATERIAL 55
8.1.4 MEASURES 58
8.2 RESULTS 61
8.2.1. MANIPULATION CHECK AND EFFECTIVENESS OF THE SIMULATION 61
8.2.2 SELF-AWARENESS, COGNITIVE, AFFECTIVE, AND BEHAVIORAL EMPATHY 62
8.3 DISCUSSION 63
8.3.1 LIMITATIONS 66
8.3.2 PRACTICAL IMPLICATIONS 67

9 SUMMARY AND INTEGRATION 67

9.1 THE EMPATHIC PROCESS – CONCEPTUAL AND METHODOLOGICAL ISSUES 70
9.1.1 INTRODUCING TWO LEVELS OF EMPATHY – SURFACE AND DEEP 70
9.1.2 METHODOLOGICAL SHORT-COMINGS IN THE MEASUREMENT OF EMPATHY 72
9.2 ANTECEDENTS OF EMPATHY DETERMINE THE EMPATHIC PROCESS – JOINT EFFECTS OF PATIENT AND PHYSICIAN CHARACTERISTICS 74
9.3 THE ROLE OF AFFECTIVE EMPATHY - AN OVEREMPHASIS? 77

10 IMPLICATION AND FUTURE DIRECTIONS 78

11 FIGURE DIRECTORY 82

12 TABLE DIRECTORY 83

13 REFERENCES 84

14 APPENDIX 101

A) DEMANDING AND NEUTRAL PATIENT SCRIPT WITH LOW MALIGNANT LYMPHOMA 101
B) DEMANDING AND NEUTRAL PATIENT SCRIPT WITH UNEXPLAINED SYMPTOMS 104

1 Introduction

“The old physician speaks Latin, and the young physician speaks English. The good physician speaks the language of the patient.”[1]

Ursula Lehr

These words by German psychologist, politician, and leading researcher in gerontology, Ursula Lehr, illustrate two important facts of medical care: (1) the physician and the patient might not speak the same language and (2) communication is a crucial component of the physician-patient-interaction.

As a consequence, researchers, health care institutions and professionals have a sustained, common goal: improving communication in health care. This can for example be done when the physician uses a patient-centered communication style. Positive effects of patient-centered communication in health care have been empirically documented in manifold ways (Adams, 1965; Bertakis & Azari, 2011; Mead & Bower, 2002; Stewart et al., 2000). Even though there is no common definition, patient-centered communication can globally be described as the physician’s ability to acknowledge patients’ personal experience of illness, emotional and psychosocial issues in the medical interaction and to enable the patient as a partner in finding solutions to the medical problem. In order to integrate the patients’ emotional and psychosocial issues and explore patients’ personal experience the physician needs affective communication skills. Therefore, affective communication skills are of great interest for researchers because they foster patient-centered communication and might help to improve the communication between doctors and patients.

The first focus of this thesis is an affective communication skill, which is also an important aspect of patient-centered communication: empathy. Physician empathy can be described as the ability to understand the patient’s thoughts and feelings and act upon this understanding in an adequate way. Empathy is a core aspect of patient-centered care because only through understanding patient’s thoughts and feelings can the physician take the patient's personal experience of illness into account and find common ground with the patient for medical decisions.

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[1] Der alte Arzt spricht lateinisch, der junge Arzt englisch. Der gute Arzt spricht die Sprache des Patienten. (Translation by the author)

There is no universal definition of empathy, but recently researchers have agreed to describe empathy as a process including several components: the cognitive component (taking the other's perspective), the affective component (feeling with the other), and the behavioral component (behaving empathically towards the other) (Irving & Dickson, 2004; Larson & Yao, 2005). Furthermore, empathy always occurs in a specific situation between two interaction partners and is thus influenced by so-called antecedents of empathy (physician, patient, and situational characteristics). Empathy is believed to improve patient outcomes but results are inconsistent (Lelorain, Bredart, Dolbeault, & Sultan, 2012; Pedersen, 2009). This is partly because most studies only assess one component of empathy in a single study.

My first study therefore aims at finding out how different empathic components are related to patient outcomes. Furthermore I investigate the question how patient characteristics influence different components of physician empathy.

A second focus of this thesis is on physician self-awareness. Self-awareness can be considered as an affective communication skill because it is described as the physician's ability to be aware of one's own affective experience and might have positive effects on physicians and patients (Krasner et al., 2009). Some researchers argue that self-awareness is an antecedent of empathy (i.e., it is mandatory to be aware of one's own feelings before being able to understand others' feelings) (Goldstein, 1994; Novack, 1987). Self-awareness is therefore believed to foster physician empathy but empirical research is scarce (Beddoe & Murphy, 2004; Krasner et al., 2009).

To fill this research gap, I investigate how antecedents of empathy affect the empathic process in the second part of this thesis. Self-awareness is a physician characteristic and will be related to different components of physician empathy. Moreover, patient characteristics (health, communication style) will be considered as well.

The results of each study will be discussed and later will be integrated in an overall discussion of the data presented. Finally, I give future directions for new studies, which are based on the implications of my research.

2 Patient-centered care

One way to deliver patient-centered care is to communicate with the patient in a patient-centered way. In practice though, physicians and patients often seem to talk at cross-purposes. Physicians almost exclusively make use of medical jargon when talking to peers and nurses (Castro, Wilson, Wang, & Schillinger, 2007). Even though they intend to switch to everyday language with patients, they do not seem to succeed very well in the eyes of their patients. Most primary care consultations in the U.S. are characterized by the physician asking closed questions and a focus on biomedical talk (Roter et al., 1997). It is probable that patients experience this biomedical style of yes/no question more as an interrogation leaving them passive and anxious, than an empathic consultation giving them room and possibility to express themselves in their own words. Similarly, in Swiss general practices, instrumental talk (exclusively used to solve the medical problem) takes up 62.3% of the medical consultation as compared to affective talk (Van den Brink-Muinen et al., 1999). Switzerland is no exception. Comparable to that percentage of instrumental talk in consultations with general practitioners are figures from The Netherlands, UK, Belgium, Spain, and Germany ranges from 57.3% (UK) to 70.9% (Belgium). While physicians on average use up to five technical terms without further explanation, patients often feel reluctant to ask for clarification (Roter & Hall, 2006). As a consequence patients often feel confused and have poor recall of what was said in the medical encounter or concerning treatment recommendations (Roter & Hall, 2006).

Talk is a substantial part of the medical consultation. A Swiss study from 2011 showed that talk between a general practitioner (GP) and a patient makes up 80% of the consultation (Litschgi, Fehr, & Zeller, 2011). During the average consultation, Swiss GPs talk about three topics and take about three minutes time for each. Additionally, the physician claims more than half of the speaking time divided between physician and patient for him- or herself (Van den Brink-Muinen et al., 1999). In 2011 (Litschgi et al.) the distribution of speaking time seemed to have shifted in favor of the patient (55% patient to 45% physician), even though this study can only be considered representative of the German part of Switzerland. Maybe this might be a first sign that a wind of change is blowing in Swiss general practices.

The question is: How can physicians change the way they communicate? According to a consensus statement authored by European experts communication in the medical consultation can be trained and therefore communication skills trainings should be implemented at all levels of medical education (Stiefel et al., 2010). Similarly, the American

Association of Medical Colleges (AAMC) as well as the American College of Graduate medical Education (ACGME) list interpersonal communication as a core competency of trainees in medical sciences (Roter & Hall, 2006).

What exactly should be improved when training physician communication skills? One aim is to achieve a physician communication which explores the illness and the patient as a whole person within a unique social and emotional context, also called patient-centered communication (Allhoff, Jarosch, Matiasek, Reenan, & Wynia, 2006; Makoul & Schofield, 1999; Simpson et al., 1991). Likewise, the Pew Fetzer Task Force (Tresolini, 2000) labeled the term relationship-centered care to underline the importance of affect and emotions in the physician-patient communication. A physician who is able to understand a patient's emotions and concerns might be better able to react to the patient's true needs and therefore improve the effects of the medical consultation for the patient (Beach & Inui, 2006). "Patient-centered" and "relationship-centered" will here be considered as two interchangeable terms describing the same communication style. However, for reasons of clarity, I will use the term "patient-centered" exclusively because it is more commonly applied in the literature.

Because there is no common definition of "patient-centeredness", in chapter 2.1, I will give an overview of different definitions of patient-centered care. In chapter 2.2 I will highlight effects of patient-centered communication.

2.1 Defining patient-centered care

The term patient-centeredness originates from Balint's (1969) early request "to understand the patient as a unique human being" whose personality, illness history, experience, preferences, and ideas need to be integrated in the medical treatment to optimize not only the consultation outcomes on behalf of the patient but also health care in general (Beach & Inui, 2006). Until the late sixties the traditional model of the physician-patient interaction was the biomedical model in which medical, biological, and physical facts are the key points of communication between physician and patient (Engel, 1977). In contrast, the patient's personality, social, or psychological aspects are neglected. As opposed to the biomedical model, Engel (1977) proposed the biopsychosocial model which puts an emphasis on exploring and taking the patient's perspective and psychosocial aspects of illness into account. In the biopsychosocial point of view the patient contributes to the physician-patient interaction as an expert on his personal experience of illness. This requires an active participation in the medical interaction on behalf of the patient and has also been described as patient-centered care.

Despite of the importance of the concept of patient-centered care given in the literature, there is no common definition of patient-centered care. One of the first more detailed definitions was given by Stewart and colleagues (1995) and describes patient-centered care as an interaction of six components concerning the physician's behavior:

1) Exploring the patients' disease as well as the patient's feelings and thoughts about being ill, the impact of the problem on their everyday life, and their expectations concerning the treatment
2) Understanding of the patient as a whole person
3) Finding common ground with the patient to establish partnership and facilitate shared decision making
4) Integrating prevention and health promotion into the visit
5) Developing the relationship between the physician and the patient
6) Being realistic about how patient-centered a care-taker can be without forgetting the doctor as a human being with personal needs and limits

Stewart and colleagues' definition is a broad description of physician's responsibility to create a patient-centered atmosphere mostly from the physician's point of view. Described are communicative behaviors or skills that are necessary or desirable in order to deliver effective health care.

Mead and Bower (2000) put forward a very similar definition by identifying six key dimension of patient-centered care as an approach to measure and distinguish patient-centered care from biomedical care:

1) The biopsychosocial perspective
   The physician takes the patient's social and psychological context additionally to the biological symptoms of the illness into account.
2) The "patient-as-person"
   The physician elicits and understands the patient's attitude, experience, and history of illness.

3) Sharing power and responsibility
   The physician provides adequate information, activates the patient, and involves the patient in decision making processes.
4) The therapeutic alliance
   The physician-patient relationship is based on and nurtured by mutual understanding, physician's empathy towards the patient, and patient's belief in the effectiveness of the therapeutic means offered.
5) The "doctor-as-person"
   The physician is aware of his or her subjective attitude, emotional and cognitive experience, and personal history which influence the interaction with the patient.

Stewart and colleagues' (1995) as well as Mead and Bower's (2000) definition lack an explicit mention of patient's preferences concerning participation or doctor's communication style. In her editorial Stewart (2001) explains that a common misunderstanding is to see patient-centered care as warm, decision-sharing, and affective, exclusively. Rather, it is about understanding patients' preferences and the flexibility to adapt communication correspondingly.

In the same manner, other researchers have described this taking the patients' preferences into account as the need for a fit between patients' and physicians' ideas about how a patient and a physician should behave during a medical consultation (Krupat, Rosenkranz, et al., 2000; Krupat, Yeager, & Putnam, 2000). Krupat and colleagues describe two dimensions (sharing and caring) of patient-centered care which range from a doctor-centered perspective to a patient-centered perspective. A physician who holds a patient-centered perspective, as opposed to a physician-centered perspective, on the sharing dimension tends to share power and information with the patient in order to elicit active patient participation. Likewise, contrary to a physician-centered perspective, a physician with a patient-centered perspective on caring integrates social and psychological aspects of the patient's personal illness experience into the consultation and the treatment. According to Krupat and colleagues (2000) the effectiveness of patient-centered care then depends on the patient's and the physician's perspectives as well as the fit of the two perspectives.

Even though mentioning the importance of patients' preferences, Krupat and colleagues' (2000) definition fails to give specific examples of how patient-centered care should be delivered. A more specific definition of how patient-centered care might be applied, also explicitly taking patients' preferences into account, has been put forward by Epstein and colleagues' (2005):

1) Eliciting and understanding the patient's perspective - concerns, ideas, expectations, needs, feelings, and functioning
2) Understanding the patient within his or her unique psychosocial context
3) Reaching a shared understanding of the problem and its treatment with the patient that is concordant with the patient's values
4) Helping patients to share power and responsibility by involving them in choices to the degree that they wish (p. 1517)

The definitions of patient-centered care presented above have been chosen because they illustrate differences as well as similarities between various definitions. Concepts of patient-centered care differ above all concerning their explicitness. While Stewart and colleagues (1995) and Epstein and colleagues (2005) provide rather detailed definition with a possibility to derive specific behaviors for training and assessing patient-centered care Mead and Bower (2000) as well as Krupat and colleagues (2000) keep their definitions on a rather theoretical, less behavioral level. Another diverging aspect concerns the content of the different definitions. While Stewart and colleagues and Mead and Bower do not explicitly state that patient-centered care also depends on the preferences of the patient for a specific care taking or communication style, Epstein and colleagues as well as Krupat specify patient's preferences as a core element of patient-centered care.

However, the different definitions also show some similarities, especially concerning their content. Synthesizing these similarities I can conclude that patient-centered care consist of several behaviors the physician can show during a medical consultation:

1) The physician considers social and psychological aspect of the patient's illness additionally to the biomedical symptoms when developing a diagnose and proposing treatment

2) The physician elicits and understands the patient’s wishes, preferences and concerns, feelings, and beliefs concerning the illness and takes these into account
3) The physician creates a partnership-like relationship by sharing adequate information with the patient in order to create a common understanding of the medical problem and in order to foster patient participation in the decision making processes – both information giving and participation depend on the patient’s preferences
4) The doctor is aware of his or her own personal experience, affective and cognitive reaction to the patient, and also his or her own personal limits of being patient-centered

These four common points in the different definitions given above might be considered as a sequence of actions where the first one facilitates the second, and so on. In other words, in order to lead a patient-centered consultation the physician needs to give importance not only to biomedical but also psychosocial aspects of the disease. Out of this interest the physician will be motivated to elicit and understand the patient cognitive and affective experience of being ill. By understanding the patient in his personal context the physician will be better able to establish a relationship with the patient according to the patient’s values and preferences. Finally, by acknowledging the physician-patient-relationship as an important means to give medical care, the physician will be able to be aware of his or her own role, perspective and experience and how this might influence the medical interaction [and the patient’s physical recovery].

After having specified the core elements of patient-centered care using different definitions I will now illustrate how patient-centered care can be beneficial in medical consultations. To do this, I will give an overview of the most commonly measured patient outcomes in relation to patient-centered care.

2.2 Effects of patient-centered care

Patient-centered communication is generally stated as an indicator of good medical care (Irving & Dickson, 2004; Mead & Bower, 2002). Likewise, patient outcomes have been used to measure the quality of patient-centered communication. For instance, patients’ who perceived their physician as more patient-centered have better health outcomes, are more satisfied and show better adherence to the medical treatment (Krupat, Rosenkranz, et al., 2000; Stewart, 1995; Stewart et al., 2000). However, patient-centered communication is not necessarily beneficial for all patients. Older patients, for instance, have been found to prefer a more authoritative communication style leaving decision making to the physician (Bradley, Sparks, & Nesdale, 2001; Irish, 1997). Nevertheless, numerous findings document a positive effect of patient-centered care on patients (e.g., better consultation outcomes, Stewart et al., 2000) and also health care institutions (e.g., reduced health care costs, Bertakis & Azari, 2011). In the following I will briefly describe the most commonly measured patient outcomes and how they are related to patient-centeredness.

To start with, patient satisfaction received increasing attention with the implementation of the concept of patient-centeredness because it takes the patient's perspective by measuring the patient's perception of medical care into account. By now patient satisfaction is the most frequently measured patient outcome in research on physician-patient communication (DiMatteo, Taranta, Friedman, & Prince, 1980; Mead & Bower, 2002). Patient satisfaction is usually measured in form of satisfaction ratings by patients via questionnaires, ranging from one single question directly addressing satisfaction (Schmid Mast, Hall, & Roter, 2007) up to several questions summing up to a global satisfaction rating (Comstock, Hooper, Goodwin, & Goodwin, 1982). Sometimes, also different types of satisfaction are assessed, such as satisfaction with physicians' communication behaviors and global satisfaction with the medical visit (Brown, Boles, Mullooly, & Levinson, 1999).

Patient satisfaction can be increased by patient-centered communication (Kinnersley, Stott, Peters, & Harvey, 1999). Patients rated their satisfaction higher when physicians were evaluated as more patient-centered by trained coders using a standardized coding system (Brown, Stewart, & Tessier, 1995). Patient satisfaction is an important patient outcome because more satisfied patients have been shown to adhere better to medical treatment (Bartlett et al., 1984).

Patient trust has received less attention in research, even though it is related to satisfaction, adherence and better health (Mostashari, Riley, Selwyn, & Altice, 1998). Whether patients trust their physician or not depends on patients' perception of physician's competence, honesty, and confidentiality (Hall, Zheng, et al., 2002; Thom, 2001; Thom & Campbell, 1997). Patient trust is commonly measured on a trust scale by asking patients if they would return to the same doctor, if they would recommend the doctor to a family member, or simply if they trust the doctor (Cousin, 2011; Thom, Ribisl, Stewart, Luke, & Physicians, 1999).

Patients have more trust in their physicians if the medical consultation is more patient-centered. According to Krupat and colleagues (Krupat, Bell, Kravitz, Thom, & Azari, 2001) a consultation is patient-centered if patients' and physicians' attitudes on two dimensions of patient-centeredness (caring and sharing) are congruent. Patients who shared their physicians' beliefs about patient-centeredness trusted and valued their physicians more than when opinions on patient-centeredness differed. Patient trust is an important patient outcome because patients who trust their physician more are less likely to switch doctors (Safran, Montgomery, Chang, Murphy, & Rogers, 2001).

Adherence to medical regime measures how likely the patient will follow or has followed medical advice, and has been shown to be linked to patients' perceptions of physician affection (Ben-Sira, 1980). Burgoon et al. (1991) assessed adherence in a global rating, asking participants who acted as analogue patients (i.e., who put themselves in the shoes of patients) how likely they would follow the physician's instructions, how persuasive they perceived the physician to be, and so on. In another study, Hall et al. (1981) measured adherence for the four passed and the four future months, interpretable as two groups of comparison or a global adherence measure. In a literature review on adherence Robinson, Callister, Berry, and Dearing (2008) identified the fact that involving the patient and seeing the patient as an individual are two main patient-centered behaviors which improve patient adherence. Research on patient adherence is of great significance for patients because patient who adhere better to the doctor's medical recommendations have better health outcomes (Robinson et al., 2008).

Health outcomes, like health improvement, felt relief, and rehabilitation are, even though being the core objective of health care, the least researched outcomes in relation to physician affective communication skills (Roter et al., 2006). In a comprehensive review Stewart (1995) listed 21 studies finding a significant effect of physician communication on patient health (i.e., anxiety, symptom resolution, and psychological distress). Behaviors having a positive influence on patient health were asking questions about patients' concerns, expectations, feelings and perspective on the medical problem, and showing support and empathy. However, further research on this relevant relationship between physician patient-centered communication skills and patient health outcomes is strongly needed, because improving health and well-being is the central aim of all health care.

Overall, a patient-centered communication style by the physician has been shown to foster and improve important outcomes for patients, such as satisfaction, trust and health status among others. Different definitions and empirical research show that patient-centered care is a multidimensional concept with several behavioral approaches. Because this thesis' focus lies on physician's communication skills I would like to highlight one core element of patient-centered care which is the physician's ability to take the patient's perspective into account and react to it in an adequate way. This skill can also be labeled as empathy. As mentioned above it seems logical to assume that understanding the patient's thoughts and feelings facilitates other patient-centered behaviors (integrating patients' preferences, reaching common ground, establishing relationship) and therefore physicians' empathy can be considered an essential element of patient-centered care. Several researchers have described empathy as a key element of patient-centered care (Irving & Dickson, 2004; McWhinney, 1989; Mead & Bower, 2002). In fact, physician empathic communication is commonly used to measure patient-centered care (Epstein et al., 2005; Roter & Hall, 2004). Acknowledging the essential role of empathy in delivering patient-centered care, in this thesis I will focus on the construct of empathy and its role in medical consultation.

3 The concept of empathy

The term empathy is based on the Greek word "empátheia" and is most probably a direct translation of the German word "Einfühlung" (Tichener, 1915), first brought up in a psychological sense by Lipps (1913). With the term clinical empathy I refer to empathy in the clinical setting, namely a caretakers empathy with a patient. Clinical empathy exclusively refers to the physician's feelings of empathy, and not to the patient feeling empathy with a physician. In order to give a thorough theoretical background on the concept of empathy I will include research from other fields of psychology, as well. Empathy has been a fascination to many researchers from different fields of psychology such as social psychology (Davis, 1996), personality research (Dymond, 1950), and health psychology (Hojat, 2007). Until today there is no universal definition of empathy and as a consequence many researchers have claimed the lack of a common operationalization (Davis, 1996; Neumann et al., 2009; Pedersen, 2009). First, I will give an overview of different ways in which empathy has been defined in the literature and after that I will give examples of different operationalizations and empirical results of empathy in the physician-patient interaction.

A common notion which is included in all definitions of empathy is a kind of "understanding the other" (Davis, 1996; Dymond, 1950; Hojat, 2007; Irving & Dickson, 2004; Larson & Yao, 2005; Mercer & Reynolds, 2002; Pedersen, 2008). In early research on empathy this understanding has been described to be either more cognitive (Dymond, 1950) or more affective in nature (Mehrabian & Epstein, 1972). The cognitive aspect of understanding the other refers to taking an other person's perspective by recognizing and interpreting the other one's thoughts and feelings (Hojat, 2007). The affective aspect of understanding the other can be understood as an inner feeling, a sharing of the other person's feelings while keeping an awareness on the fact that this affective experience is alike but not identical to that of the other's (Rogers, 1975). In addition, the concept of empathy has been thought of as a multidimensional, intrapersonal process incorporating both cognitive and effective components (Davis, 1983). This view of multidimensionality has persisted in most of the latest models on empathy (Irving & Dickson, 2004; Larson & Yao, 2005; Neumann et al., 2009). Furthermore, results from neuroscience show that the feeling of cognitive and affective empathy activates different areas in the brain (Singer, 2012). This indicates that cognitive and affective empathy are two different processes even though researchers stress that there also is an interaction between cognitive and affective processes which can be observed in the activation patterns in the brain (Zaki & Ochsner, 2012).

Another common feature of newer models on empathy is the integration of a behavioral dimension, meaning an interpersonal aspect. This accounts for the idea that empathy is not something that happens only within a person but between interaction partners in a specific context. A common assumption in such models is that the cognitive and affective components affect the behavioral dimension (Irving & Dickson, 2004; Larson & Yao, 2005; Mercer & Reynolds, 2002). In other words, one cannot *be* empathic without having understood or felt with the other.

In addition to the description of empathy given above I would like to make an important distinction between empathy and a similar concept, originating from person perception research, which is called interpersonal sensitivity. Interpersonal sensitivity is defined as "the ability to sense, perceive accurately, and respond appropriately to one's personal, interpersonal, and social environment" (Bernieri, 2001) (p. 3). Hence, both concepts share the aspects of correctly understanding others' thoughts and feelings, and an appropriate or empathic action as a consequence. Furthermore, the measure of nonverbal sensitivity, as the ability to infer thoughts and feelings from other's nonverbal cues, has been frequently used to measure both cognitive empathy and interpersonal sensitivity (Losoya & Eisenberg, 2001).

Nevertheless, the concepts differ in several ways. While empathy includes an aspect of being emotionally involved (feeling *with* the other), interpersonal sensitivity does not. Similarly, interpersonal sensitivity includes the ability to correctly interpret a social context or relationships between people (Bernieri, 2001), while empathy usually is referred to as being the cognitive, affective and behavioral reaction to one other. To sum up, the concepts of empathy and interpersonal sensitivity are similar and share the fact that both require an understanding of other's inner experience. However, both concepts also include components, which are unique. In the following I will describe each component of empathy more closely.

3.1 Cognitive empathy

Hojat and colleagues (2002) define the "understanding" aspect of clinical empathy "as a cognitive attribute that involves an ability to understand the patient's inner experiences and perspective […]" (p. 1564). The skill to take another's perspective requires first of all a distancing from one's own point of view by recognizing the egocentric perspective as one of many possible perspectives (Piaget, 1932). Basic forms of this ability are developed during childhood at the age of three or four (Marvin, Greenberg, & Mossler, 1976). In the medical setting, an example for cognitive empathy could be a physician who takes the patient's perspective into account when thinking about a sugc7gested treatment: What does the patient think about antibiotics? Does the patient need help to follow the treatment? How does the patient feel about the disease and is he or she emotionally able to cope with the disease? Such reflections might help the physician to choose the best suitable treatment for a patient and thus enhance patient adherence, for instance.

Overall physicians seem to perform rather poor at understanding patients' thoughts and feelings. Some studies indicate that physicians seem to have a rather vague idea about their patients' inner life (Gulbrandsen et al., 2012; Merkel, 1984; Street & Haidet, 2011). Hall and colleagues (Hall, Stein, Roter, & Rieser, 1999) measured physicians' decoding skills as the ability to recognize patients' thoughts and feelings, by comparing physicians' and patients' evaluation of patients' emotional states, satisfaction and subjective health status after a medical consultation. There were no or only weak correlations between these variables. When comparing health care providers' cognitive empathy to that of individuals from a normal population there is no obvious difference. Furthermore, Hall (2011) reports that medical students' nonverbal sensitivity as the skill to infer thoughts and feelings from others nonverbal cues, does not differ from that of students from other domains. There is empirical evidence, though, that medical students' cognitive empathy measured as the ability to take patients' perspective declines during the medical curriculum (Hojat et al., 2004).

Furthermore, cognitive empathy depends on the physician's characteristics. Female medical students and physicians are generally found to be more cognitively empathic than their male colleagues (Hall, Roter, Blanch, & Frankel, 2009; Hojat et al., 2002). This is also a well-established finding from research in non-medical settings (Hall, 2001). Additionally, while on the one hand cognitive empathy is enhanced by the physician's well-being, on the other hand high feelings of burnout and depression seem to have a negative impact on cognitive empathy (Thomas et al., 2007). Physicians also seem to profit professionally from cognitive empathy. As an example: Physicians who are more sensitive to patients' emotional cues are slightly better at recognizing anxiety or depression in their patients (Robbins, Kirmayer, Cathébras, Yaffe, & Dworkind, 1994). Occupational therapy students who were better at recognizing patients' emotions were better evaluated by their supervisors at the end of their clinical fieldwork (Tickle-Degnen, 1998).

3.2 Affective empathy

According to Losoya and Eisenberg (2001) affective empathy can be defined as a state of emotional arousal that stems from the apprehension or comprehension of another's affective state which is similar to, or congruent with, what the other person is feeling […] " (p. 22). An exemplary situation in the medical encounter, when a physician might be affectively empathic, might be a bad news consultation. The physician might feel a similar sadness, frustration or anger to that of the patient when conveying a cancer diagnosis to the patient. At the same time a physician could feel happy with the patient, when bringing good news such as a negative test of a chronic disease such as diabetes, for example. Having a congruent emotional experience with a patient might be of great therapeutic value to the physician. Emotions regulate and elicit behavior (Frijda, 1987; Scherer, 2005) and thus could be a source of information for the physician as to how to behave with a patient. Similarly, researchers have argued that it is not possible to feel with the other without being aware of one's own feelings (Novack, 1987). This ability is called self-awareness and will be described in more detail in chapter 5.

Additionally, many researchers have argued that affective empathy is not to be confused with sympathy. Rogers (1975) names a criterion for the distinction between affective empathy and sympathy which he calls the “as-if quality”. He states that affectively empathic therapists feel their patient’s emotional experience “as-if” it was theirs. If the “as-if”-aspect is lost, then the therapist identifies with the patient (Rogers, 1975) and this process is called sympathy. Feeling sympathy for a patient might impede the physician‘s objective view on medical facts and thus the success of the medical consultation (Hojat, Gonnella, Mangione, Nasca, & Magee, 2003).

Furthermore, an additional distinction to another concept termed “emotional contagion” is vital. Emotional contagion refers to the unconscious mimicry and synchronization of emotional reactions in others (Singer, 2012), while affective empathy is a conscious process of recognizing and sharing the other’s emotions.

In the physician-patient relationship affective empathy can be beneficial. When physicians share their patients’ feelings of liking physicians are more satisfied after the medical consultation (Hall, Horgan, Stein, & Roter, 2002). However, in the case of negative emotions, affective empathy might be destructive. In oncology, patients often experience feelings of extreme anxiety, sadness, or anger. This often triggers physicians’ affective empathy in the form of emotional involvement (e.g., stress, frustration, anger). However, in this situation the physician must not show this negative emotional reaction to the patient. Such emotional dissonance (between emotions experienced and emotions displayed) in the physician leads to reduced well-being, physician burnout, and even avoidance of the concerned patient (Meier, Back, & Morrison, 2001; Tschan, Rochat, & Zapf, 2005). Overall, empirical research on affective empathy has a moderate overlap with research on cognitive empathy because some instruments include items on both cognitive and affective empathic components (Davis, 1983; Mercer, Maxwell, Heaney, & Watt, 2004; Monica, 1981), representing multidimensional measures of clinical empathy. However, most studies analyze the correlations (e.g., burnout, stress) of affective empathy in medical training. Despite the fact that affective (and also cognitive) empathy seems to be higher in medical than in other students at the beginning of the medical training, affective empathy has been found to decline during the medical curriculum, much like cognitive empathy (Newton, Barber, Clardy, Cleveland, & O'Sullivan, 2008; Rosen, Gimotty, Shea, & Bellini, 2006). At the same time, other studies have successfully shown that affective empathy, self-evaluated by physicians can be improved through training.

In one a training situation, medical students took part in classes discussing literature on physicians and patients. As authors explain, medical students trained and promoted the emotional involvement with a relevant other, based on the literature examples and therefore improved their affective empathy (Shapiro, Morrison, & Boker, 2004). In a different training students participated in a class on so-called mindfulness-based stress reduction techniques (Shapiro, Schwartz, & Bonner, 1998), including meditational and yoga sessions. Because stress is negatively related to empathy (Beddoe & Murphy, 2004) the authors argue that medical students ability to feel with another increases (Shapiro et al., 1998) when awareness of their own emotional experiences is increase. This happens because awareness of one's own emotional experience seems to reduce the high levels of stress caused by the demanding medical curriculum.

3.3 Behavioral empathy

Irving and Dickson (2004) argue for a three dimensional approach to conceptualize empathy by adding a behavioral dimension to the cognitive and affective empathic dimensions. This is in line with other authors' ideas (Feighny, Arnold, Monac, Munro, & Earl, 1998; Hojat et al., 2002; Larson & Yao, 2005; Mercer & Reynolds, 2002). That means that empathic behavior can be a consequence of the cognitive and affective empathic skill (the physician correctly identifies a patient's emotional cue and reacts with an empathic comment or gesture). Also, empathic behavior might occur as a trigger for patient emotional cues (the physician makes empathic gestures in order to encourage the patient to disclose his or her feelings or concerns). In fact, nonverbal behavioral is an essential part of the communication process between physicians and patients (Schmid Mast, 2007). However, when it comes to the question what exactly empathic behavior means, there is no such thing as a comprehensive list of behaviors considered as empathic. Rather in the literature "being empathic" ranges from broad descriptions of physician communication styles (i.e., warm, friendly, or reassuring) to the identification of specific behaviors like eye gaze or empathic statements (Bensing, Schreurs, & De Rijk, 1996; DiBlasi, Harkness, Ernst, Georgiou, & Kleijnen, 2001). As a fact, empathic behavior can be expressed verbally through words and nonverbally through gestures, mimicry or posture. For instance, a doctor who listens carefully to a patient's story of being ill: while listening he or she can encourage the patient to express possibly important details by making facilitative comments like "I understand", or the doctor might simply nod or frown from time to time as a sign of attention to the patient's report. Such active listening might give the patient the feeling of being understood, which is a central aim of the physician-patient-interaction (Engel, 1992).

Physicians' empathic verbal behavior has been measured as the reaction to patients' empathic opportunities (Suchman, Markakis, Beckman, & Frankel, 1997). However, most often patients do not express their need for emotional support openly (Cegala, 1997) . In the absence of a direct question for emotional support by the patient physicians have to "read between the lines" of the patients' story (e.g., "Sometimes I am so upset that I can't stop crying") or watch for patients' nonverbal cues (e.g., tone of voice) in order to be able to adequately address and respond to a given empathic opportunity (Butow, Brown, Cogar, Tattersall, & Dunn, 2002). Either way, empirical results indicate that physicians do not react to most of patients' empathic opportunities, whether they are directly expressed or hidden between the lines (Suchman et al., 1997).

Moreover, physicians differ in their ability to behave empathically. Female doctors are usually found to engage more in behaviors considered as empathic in contrast to their male colleagues. An important meta-analysis by Roter and colleagues (2002) on gender effects in the physician-patient interaction found that female physicians' talk contains more psychosocial issues, is more positive, emotional and more partnership-oriented than that of male physicians. Also, female physicians show more nonverbal behaviors that are perceived as warm and empathic, such as smiling and nodding.

To sum up, research shows that all three empathic components (cognitive, affective, and behavioral) have a significant influence on the physician-patient-interaction. Therefore I will now proceed to present a model integrating cognitive, affective and behavioral empathy into one empathic process.

3.4 Clinical empathy: a comprehensive model

The process model of clinical empathy proposed by Larson and Yao (2005) is based on an organizational model presented earlier by Davis (1996). I have chosen this model because it combines cognitive and affective psychological processes as well as behavioral aspects into one concept of empathy. Also, Larson and Yao's model fits well with my thesis' theoretical background because the authors present empathy as a constantly changing process between two interaction partners in the medical consultation rather than a stable attitude of one single person (i.e., the physician) (Irving & Dickson, 2004; Larson & Yao, 2005).

Figure 1 depicts the relations between six different components during an empathic process: antecedents, empathic processes, intrapersonal processes, interpersonal processes, physician outcomes, and patient outcomes. Antecedents like characteristics of the physician, the patient, or the medical situation influence each empathic process. As a direct consequence empathic processes, consisting of several psychological processes within the physician, are triggered. These empathic processes lead to short term intrapersonal and interpersonal outcomes. Intrapersonal outcomes refer to changes on a cognitive and affective level, which in turn affect physicians' long term outcomes. Interpersonal outcomes refer to short term changes on a behavioral level and influence long term outcomes for the physician and the patient. In the following, each component is described in more detail.

Antecedents of empathy are factors such as physician characteristics (gender, age, and personality), patient characteristics (health status, age, and gender) and situational characteristics (time pressure, gender dyad in the medical consultation). Antecedents of empathy influence simple psychological *empathic processes* within the physician (e.g., a female doctor might have other direct associations when talking to a patient with breast cancer than a male doctor). Antecedents of empathy also directly influence physicians' intrapersonal outcomes (whether the physician is able to recognize the patient's thoughts and feelings or to feel with the patient) and interpersonal outcomes (how empathic the physician behaves with the patient).

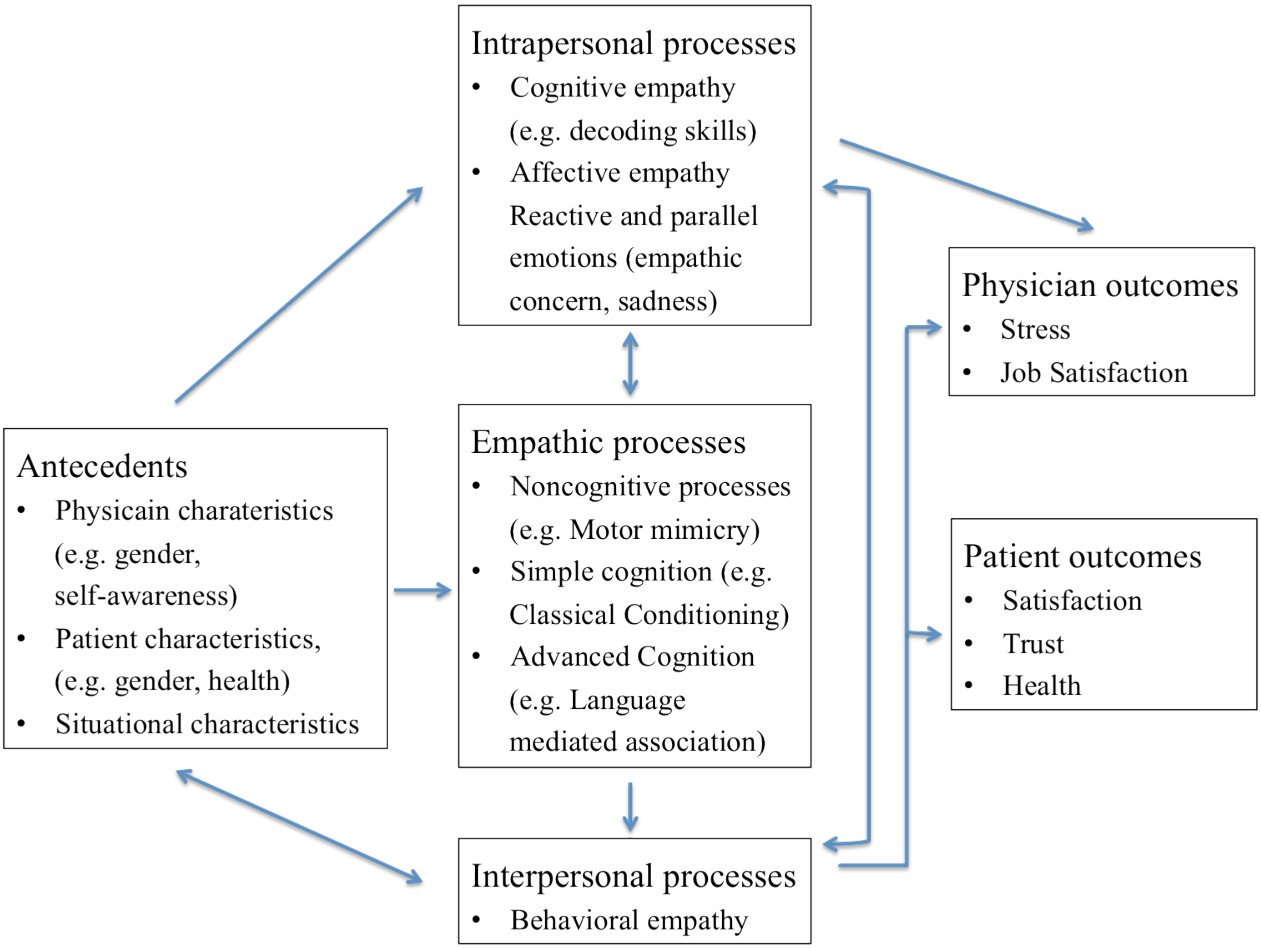
Intrapersonal processes
Cognitive empathy (e.g. decoding skills)
Affective empathy Reactive and parallel emotions (empathic concern, sadness)
Physician outcomes
Stress
Job Satisfaction
Antecedents
Physicain charateristics (e.g. gender, self-awareness)
Patient characteristics, (e.g. gender, health)
Situational characteristics
Empathic processes
Noncognitive processes (e.g. Motor mimicry)
Simple cognition (e.g. Classical Conditioning)
Advanced Cognition (e.g. Language mediated association)
Patient outcomes
Satisfaction
Trust
Health
Interpersonal processes
Behavioral empathy

Figure 1. The Process model of clinical empathy (Larson&Yao, 1995; Davis, 1996). Single direction arrows indicate the influence of one component on another. Double direction arrows indicate interactions (i.e., feedback-effects) between two components.

The component of *empathic processes* is a set of simple cognitive activities such as motor mimicry, classical conditioning, or language mediated association. Empathic processes are the first reaction to antecedents of empathy and occur on a mostly unconscious level. As an example, when seeing a patient in a lot of pain the physician might react by unconsciously mirroring the patient's mimic expression of pain at a less intense level. Furthermore, a classical condition brings up related concepts in the physician's thoughts and feelings, which might be further qualified by language, mediated association as a reaction to patient's verbal communication of his or her experience of pain. Empathic processes influence intrapersonal and interpersonal outcomes.

Intrapersonal processes occur on a more conscious level and include processes like cognitive empathy and affective empathy. Cognitive empathy describes the physician's ability to take the patient's perspective and understand the patient's thoughts and feelings (i.e., decoding skills). Affective empathy refers to the physician's emotional reaction to the patient's stimuli (reactive emotions) and the physician's ability to feel with the patient (parallel emotions). Intrapersonal outcomes depend on antecedents of empathy and on the unconscious empathic processes within the physician. In other words, a physician's perception of the consultation situation affects his or her thoughts about and feelings towards the patient. For example, a physician who is under time pressure might not be able to correctly recognize a patient's anxiety. Or, a physician who unconsciously mimics a patient's expression of sadness, might become sad him- or herself. Also, intrapersonal processes influence physician outcomes like job satisfaction.

The component of *interpersonal processes* contains behavioral and communicative reactions labeled as behavioral empathy, such as physician communication style, helping behavior or conflict management. Interpersonal processes depend on antecedents of empathy and simple empathic processes. Interpersonal processes influence physician and patient outcomes. For instance, a physician who adopts an empathic communication style with a very sick patient might elicit a patient's self-disclosure and thus learn more about the patient's thoughts and feelings about a therapeutic treatment. This in turn might increase the physician's job satisfaction and improve the patient's adherence.

Physician outcomes, like job satisfaction or burnout, are influenced on a long term basis by physician's empathic thoughts, feelings and behavior. Because "being empathic" is part of a moral commitment physicians make (Pedersen, 2008), the authors argue that empathy can also be rewarding for the physician.

Clinical empathy might lead to more meaningful relationships with patients and as a consequence increase job satisfaction for the physician. However, being empathic might also have negative consequences such as burnout or compassion fatigue (Figley, 1995; Kearney, Weininger, Vachon, Harrison, & Mount, 2009). When being empathic physicians take part in their patients' suffering and thus suffer themselves (Figley, 2002). When this suffering gets too much it can result in trauma, described as compassion fatigue.

Physicians' empathic behavior can influence *patient outcomes* (e.g., satisfaction, trust) and physician outcomes in the long term. A caring communication style by the physician can be very efficient. Patients, who feel understood by their physician and perceive that their psychosocial needs are responded to, might be more satisfied with care and have better health outcomes. Also, a physician who expresses his or her empathy to a patient might feel satisfied from the way he or she treats the patient with respect and understanding, because he or she is successful in practicing his or her beliefs of patient-centered care.

Additionally to the top-down effects between empathic components described above (starting with antecedents of empathy and resulting in physician and patient outcomes), there are several feedback interactions between empathic components of the model. One such feedback loop runs between antecedents and interpersonal processes. That means that when the physician behaves empathically to the patient's expression of anxiety, the patient might be less anxious, which creates a new less stressful situation. Furthermore, intrapersonal processes and empathic processes are interactively connected, so that a physician, who feels stress by the look of a patient being in a lot of pain, might be blocked in his or her empathic associations with the patient, and therefore the understanding of the patient's situation. Finally, intra- and interpersonal processes give feedback to each other. A physician who understands his patient will be able to better show an adequate helping behavior or conflict management with this patient.

In this thesis I will analyze the relationship between three components of clinical empathy (antecedents, intrapersonal and interpersonal processes), and patient and physician outcomes. Therefore, in chapter 4.1 I will give examples of measures of affective, cognitive, and behavioral empathy. In chapter 4.2 I will illustrate empirical results of cognitive, affective, and behavioral empathy in relation to patient outcomes, as well as the effects of antecedents of empathy and their effects on the empathic process.

4 Empirical research on clinical empathy

4.1 Measuring clinical empathy

Different components of empathy have been operationalized in many different ways in empirical research. Pedersen (2009) lists a few sources of diversity in measures of empathy in his review. For instance, which component of empathy is measured: Cognitive, affective or behavioral empathy? Whose perspective was taken to measure empathy: The physician's, the patient's or that of an independent observer? Was empathy measured as a disposition, a general tendency to think, feel and act empathically, or was it measured as an empathic reaction in an unfolding situation depending on specific contextual characteristics?

Clinical empathy has mostly been measured with questionnaires, standardized tests of emotion recognition, or coding systems of empathic behavior (Pedersen, 2009). In questionnaires, physicians, patients, or independent observers usually rate their agreement with items on their empathic thoughts or feelings or their perception of empathy conveyed by the other. Questionnaires on clinical empathy may assess cognitive, affective, or behavioral empathic components exclusively, or as a combination in a single instrument. Examples of questionnaires measuring clinical empathy as a dispositional skill from the physician's perspective are: the Jefferson Scale of Physician Empathy (JSPE), which measures physicians' cognitive empathic skill to take a patient's perspective (Hojat et al., 2002); the Balanced Emotional Empathy Scale (BEES), which measures physicians' affective empathic skill to feel with their patients (Mehrabian, Young, & Sato, 1988); the Interaction Reactivity Index (IRI), which measures physicians' cognitive and affective empathic skills on four subscales (perspective-taking, fantasy, empathic concern, and personal distress) (Davis, 1983), just to name a few. Questionnaires analyzing physician empathy from the patients' perspective are: The CARE (Consultation and Relational Empathy Measure) questionnaire, which assesses a physician's cognitive, affective and behavioral empathic reaction in a specific consultation context; the SERVQUAL questionnaire, which is frequently used to assess quality in health care, but also includes a subscale on clinical empathy, with cognitive, affective and behavioral elements referring to physicians' empathy as a dispositional skill (Parasuraman, Zeithaml, & Berry, 1988).

However, while questionnaires give a direct insight into the empathic feelings of the health care provider, these questionnaires often lack a criterion. For instance, if the physician is evaluating his or her own empathy, the accuracy of these self-evaluations cannot be determined (and the same is true for patients' evaluations of physicians' empathy). If the physician thinks he or she was very empathic, does the patient share this perception? Thus, a criterion to physicians' self-evaluation of empathy could be patients' perception of physicians' empathy. Also, including ratings from independent observers can add objectivity to physicians' or patients' self-reports.

Standardized tests of emotion recognition measure cognitive empathy as physicians' ability to infer patients' emotion from their nonverbal (and sometimes also their verbal) cues in pictures or videos. As a criterion, the target indicates which emotion he or she felt on the picture or at a specific moment in the video. Examples of emotion recognition tests are the Diagnostic Analysis of Nonverbal Accuracy (DANVA; Nowicki & Duke, 1994) or the Profile of Nonverbal Sensitivity (PONS; Rosenthal, Hall, & DiMatteo, 1979). The DANVA in its original form assesses the ability to accurately recognize the four basic emotions happiness, anger, sadness, and fear in facial expressions from adult individuals. Stimulus pictures vary in terms of emotional quality, intensity levels of emotions (high and low), and racial background of the individual in the picture (Baum & Nowicki, 1998). The test includes 24 items and multiple-choice answers.

The PONS consists of a 220-item set of nonverbal cues in specific scenes acted by a woman (Rosenthal et al., 1979). Displayed are actions that occur in a social context such as "talking to a lost child", "talking about one's divorce", and "expressing jealous rage", presented in paper, video or audio form. Often shortened versions of the PONS (e.g., only the video, audio or print version) are administered because the full PONS is considered to be time-consuming and fatiguing for test-takers (Hall, 2001).

Coding systems are mainly used to analyze empathic behavior. The Roter Interaction Analysis System (RIAS) can be applied to assess physicians' verbal empathic communication (Roter & Larson, 2002). This coding system was specifically developed for the analysis of the physician-patient-interaction. The RIAS consists of more than 40 categories referring to the quality of physician and patient utterances. An utterance can be one word or one sentence. Example categories are "shows empathy", "reassures or shows optimism", and "gives medial information". For statistical analysis, categories can be clustered into meaningful groups. Another coding system is the Four Habits Coding Scheme (4HCS, Krupat, Frankel, Stein, & Irish, 2006), which measures four aspects of patient-centered behavior (invest in the beginning, elicit the patients' perspective, demonstrate empathy, and invest in the end).

Independent raters evaluate physicians’ success in demonstrating empathy on global ratings of physicians’ verbal and nonverbal behavior (e.g., the physician makes clear attempts to identify patients’ feelings by identifying or labeling them; the physician displays nonverbal behavior that expresses great interest, concern, and connection throughout the visit).

Given the different approaches these measures use to assess empathy, it is not surprising to find an unclear pattern of empirical results relating clinical empathy to patient outcomes. In the following chapters, I will present relevant results on the association between clinical empathy and patient outcomes and how patient characteristics are related to clinical empathy. My aim is to a) give an adequate overview and b) prepare the ground for the research questions.

4.2 Clinical empathy and patient outcomes

4.2.1 Cognitive empathy and patient outcomes

Cognitive empathy has been found to affect patient consultation outcomes. However, there are also a number of studies that do not find a significant link. Cognitive empathy has most often been analyzed in relation to patient satisfaction. An early study demonstrated that patients whose physicians showed more cognitive empathy, measured as nonverbal sensitivity, were more satisfied after the consultation (DiMatteo, Hays, & Prince, 1986). In contrast, genetic counselors with better scores on a nonverbal sensitivity test had less satisfied counselees (Roter et al., 2008). In a study on cancer care, cognitive empathy was assessed as the physicians’ emotional decoding skill, described as correctly inferring their patients’ feelings of worry. Results showed that physician decoding of patient worry was not related to patient satisfaction (Fröjd & Von Essen, 2006).

Cognitive empathy also influences patient health. Physicians’ self-evaluated cognitive empathic skill to take the patient’s perspective had positive effects on patient health: Diabetes patients who had more cognitively empathic physicians experienced less acute metabolic complications (Canale et al., 2012). In a study on acupuncture, patients evaluated physicians cognitive empathy (among other empathic components) and there was no significant link between physicians’ cognitive empathy and patients’ self-rated health outcomes (MacPherson, Mercer, Scullion, & Thomas, 2003). However, in the same study more physician cognitive empathy was related to better patient enablement, and more patient enablement led to better patient health.

Cognitive empathy is believed to affect patient adherence to medical recommendations (Vermeire, Hearnshaw, Van Royen, & Denekens, 2001). In one of the rare studies measuring more than one component of clinical empathy, Kim, Kaplowitz, and Johnston (2004) assessed cognitive and affective empathy and how it is related to variables such as medical information exchange, physicians' partnership-oriented communication, perceived competence, trust and satisfaction. There was no direct link between more cognitive empathy and better patient adherence, but more cognitive empathy was associated with more medical information exchange, which in turn was associated with better patient adherence. The results on affective empathy are reported in the next section.

4.2.2 Affective empathy and patient outcomes

Affective empathy is related to patient satisfaction. Kim and colleagues (2004) measured affective empathy in relation to perceived physicians' partnership-orientation, patient satisfaction, and trust. As with cognitive empathy, the authors did not find a direct link between affective empathy, measured as patients' perception of physicians' accurate sense of patients' emotional experience, and satisfaction and trust as outcome variables. There was an indirect link, though: More perceived physician affective empathy was related to patients' perception of a more partnership-oriented physician communication style. A more partnership-oriented communication style, in turn, was significantly related to more patient satisfaction and trust. Affective empathy has also been measured as the physician's skill to share patients' emotions in a study on liking (Hall, Horgan, et al., 2002). Physicians and patients were asked about their mutual liking and results showed that mutual liking was related to higher patient satisfaction and better patient self-reported health. DiMatteo and colleagues (1986) measured behavioral empathy as emotional encoding (i.e., the skill to express specific emotions through nonverbal communication) and also found a positive effect between better physicians' emotional encoding skills and patient satisfaction. This is in line with research from the nonmedical field, where more affective empathy as the ability to feel with the other has been shown to be related to higher satisfaction in interpersonal relationships (Schutte et al., 2001).

Other patient outcomes have been related less frequently to affective empathy. A study on nurses' affective empathy showed that undesirable patient outcomes might be enhanced by nurses ability to feel with patients: More affective empathy in nurses was related to higher levels of distress in patients (Olson, 1995). Overall, there are only few studies analyzing the relationship between affective empathy and patient outcomes. Most research on affective empathy focuses on its role in medical training (Shapiro et al., 2004), such as the finding that affective empathy, as the ability to feel with the other, declines during the medical curriculum (Newton et al., 2008).

4.2.3 Empathic behavior and patient outcomes

Different studies have measured verbal and nonverbal behaviors that are considered as empathic. There is no clear relation between verbal empathy and patient satisfaction. On the one hand, there is evidence that patients were less satisfied if physicians expressed more verbal empathy by being more emotionally responsive (Korsch, Gozzi, & Francis, 1968). On the other hand, an empathic communication style by the physician, such as reassuring the patient, making partnership statements, and expressing positive affect in a simulated bad news consultation, yielded significantly higher patient satisfaction ratings compared to when the physician used an emotional or disease-centered communication style (Schmid Mast, Kindlimann, & Langewitz, 2005). Furthermore, the effect of verbal empathy seems to depend on the phase of the consultation in which it is expressed: when physicians were more verbally empathic (i.e., issuing more psychosocial topics) during the physical examination phase, verbal empathy was a significant predictor of patient dissatisfaction (Eide, Graugaard, Holgersen, & Finset, 2003).

Moreover, behavioral empathy as nonverbal behavior was measured in relation to patient satisfaction. When physicians' tone of voice was more caring and interested, reflecting an empathic nonverbal style, patients were less satisfied with physicians' competence (Castro et al., 2007). Behavioral empathy has also been researched in relation to other patient outcomes. Some studies measured verbal empathy as the amount of empathic (or non-empathic) remarks. Physicians who made more empathic remarks by addressing and validating patients' concerns were seen as more trustworthy by their patients (Fiscella et al., 2004). Moreover, when physicians were less verbally empathic, using more controlling statements, patients reported less adherence with the medical treatment (Cecil & Killeen, 1997). Other studies measure the amount of nonverbal behaviors considered to be empathic. Physical therapists' nodding, smiling, and frowning increased geriatric patients' physiological and psychological functioning (Ambady, Koo, Rosenthal, & Winograd, 2002). However, when physicians spent more time looking at the medical chart instead of looking at the patient (as a non-empathic nonverbal style), there was no significant association between patient mental and physical health status and physician gazing (Hall, Roter, Milburn, & Daltroy, 1996).

This short review of empirical research on empathy and patient outcomes shows that some outcomes have been in the focus of attention while others have been rather neglected. Patient satisfaction has been the most commonly measured patient outcome and is related to patient health. At the same time, empirical research on the relation between empathy and patient satisfaction is very contradictory (Lelorain et al., 2012). Therefore, it is of great interest to further investigate the effects of empathy on patient satisfaction. In contrast, there is a paucity of empirical research on empathy and patient trust. However, it is likely that a patient who trusts his doctor is more motivated to actively participate in the medical consultation. Furthermore, trust can be considered a prerequisite for adherence (Kim et al., 2004). It thus seems that trust is a critical patient outcome which is related to other outcomes such as adherence and satisfaction. In this thesis, I will therefore focus on satisfaction and trust.

Overall, the effects of different components of clinical empathy on patient outcomes are unclear. This might have several reasons. One reason is that usually studies only measure one component of empathy even though empathy is considered a very multifaceted concept. Therefore, in my first study I aim at taking a first step to fill this gap of research by asking the following global research question:

I. How are different components of empathy related to patient outcomes?

Or more specifically:

   a. How are cognitive, affective, and behavioral empathy related to patient satisfaction and trust?

As a second reason for the diversity of empirical results on the relation between empathy and patient outcomes, studies focusing on the same component of empathy often use different measures of empathy, and therefore make a comparison of results difficult. Therefore in my first study I will use two different measures for each empathic component.

4.3 The interrelation between empathic components

Empathy is assumed to be a dynamic process where intrapersonal and interpersonal empathy influence each other (Irving & Dickson, 2004; Larson & Yao, 2005). Most researchers propose a positive relation between cognitive/affective and behavioral empathy (Davis, 1980; Irving & Dickson, 2004; Larson & Yao, 2005). That means that a physician who is better at taking a patient's perspective and feels with the patient might be better able to show empathic behavior (verbal and nonverbal) to the patient. However, because most studies only measure one component of empathy, empirical results on this theoretical assumption are few. Hojat and colleagues (2005) found a positive correlation between medical students' self-evaluations of cognitive empathy and observers' ratings of the students' empathic behavior. However, students rated their cognitive empathy in the third year of medical school and their empathic behavior was evaluated three years later by their directors during residency training. In another study, Bensing (1991) found a positive relation between physicians' psychosocial communication and affective behavior. Psychosocial communication was measured as physicians' cognitive empathy (probing and understanding of patients' feelings, among other variables) and affective behavior was measured as physicians' verbal empathy (among other variables). However, it is unclear whether the positive correlation found is due to a relation between empathic components or rather other variables.

Moreover, cognitive and affective empathy might be related. A physician who is able to take a patient's perspective and understand a patient's feelings might also be better able to feel with this patient. There is some evidence for a positive relation between cognitive and affective empathy (Davis, 1980). However, what lacks is a study combining several measures of cognitive and affective empathy in order to strengthen previous findings. Therefore I will test the relation between cognitive, affective and behavioral empathy in Study 1 and 2 with the following global and specific research questions:

II How are different components of empathy interrelated?

IIa. How do cognitive, affective, and behavioral empathy intercorrelate?

Larson and Yao (2005) describe empathy as an experiential process which depends on the situation in which it occurs. Consequently, contextual characteristics, such as patient or physician characteristics, might affect the empathic process. I will give examples of such context effects in the following.

4.6 Effects of antecedents on clinical empathy

There is evidence showing that patient characteristics like race, gender, and health influence clinical empathy (Engel, 1977; Hall, Irish, Roter, Ehrlich, & Miller, 1994). For instance, physicians were more verbally dominant and had a less affective voice tone, as signs of less behavioral empathy, with African American patients as compared to White or Asian patients. Siminoff, Graham, and Gordon (2006) measured patient race and many other patient demographic variables. They found that physicians displayed more verbal empathy (e.g., more emotional talk and more partnership-building remarks) with white, younger, and better educated patients, as compared to patients who came from other racial backgrounds were older or had lower levels of education.

Concerning patient gender, it seems that physicians' behavioral empathy is higher with female than with male patients (Hall et al., 1994; Kupfer & Bond, 2012). For instance, when seeing a female patient, physicians engage in more psychosocial talk, more positive talk (Hall et al., 1994), and ask more questions concerning patients' feelings and opinion (Wanzer, Booth-Butterfield, & Gruber, 2004), as indicators of verbal behavioral empathy.

Furthermore, patients' health seems to affect clinical empathy. As an example, physicians' nonverbal empathy, measured as a caring voice tone, was decreased if patients' general health was worse (Castro et al., 2007). Hall and colleagues (Hall, Milburn, Roter, & Daltroy, 1998) measured patients' general health status and found that sicker patients received less verbal empathy, assessed as social talk, from their doctors. Moreover, sicker patients were less satisfied with their physicians' care. The fact that sicker patient receive less verbal empathy (i.e., less exploring of patients feelings and opinion) has also been found in pediatric care (Wanzer et al., 2004). These results give reason to think that a lack of physician verbal empathy might be a cause for sicker patients' decreased satisfaction. However, more research is needed to clarify the role of patient health status in relation to the different components of physician empathy. Therefore in my first study I will look at the effects of patient characteristics on different components of empathy. My third global research question is:

III How are antecedents of empathy related to different components of empathy?

IIIa How are patient characteristics such as gender and health related to different components of empathy?

More specifically, and because patient health is one of the most central factors in the medical consultation:

IIIa1. Is patient health related to cognitive, affective, and behavioral empathy?

Furthermore, patient communication style is an important patient characteristic. How a patient presents his or her case to the physician influences the physician's empathy (Street, Gordon, & Haidet, 2007). One type of patient has received special attention in research: The so called difficult patient who typically acts or communicates in an aggressive, demanding, rude, and violent way, and might have non-specific or psychosomatic complaints (Steinmetz & Tabenkin, 2001). Difficult patients have been found to be less satisfied with care, have higher health care cost and use more health care services (Jackson & Kroenke, 1999). Moreover, other patient attitudes influence physicians' behavior. Physicians treat those patients more empathically who are more positive, less contentious, and more involved in the medical interaction (Street et al., 2007). Empathic behavior was measured as informative, supportive, and partnership-building talk, and affective tone (i.e., more positive and less contentious). Likewise, physicians prescribe more follow up diagnostic tests to patients with chest pain if they presented their case in a straightforward as compared to a dramatic, theatrical style (Birdwell, Herbers, & Kroenke, 1993). The authors explain that physicians might take the neutral patient more seriously when describing his or her complaints. The dramatic patient seems exaggerated and therefore physicians' accurate decoding of patients' thoughts, feelings and experience of illness might be distorted (i.e., the physician might be less cognitively empathic). The rationale behind these findings is that physicians might experience some sort of negative affective empathic response (e.g., reactive emotions such as anger or stress) when seeing a contentious, aggressive or otherwise unpleasantly communicating patient, which in turn negatively influences physicians' empathic behavior and also the patient.

Patient characteristics influence physician empathy in many ways and empirical evidence indicates that there might be disparities in the delivery of quality health care because patient characteristics hamper or affect physician empathy. Empathy is not a constant display of specific behavior but rather an ability of the physician to adapt his or her empathic behavior to different patients with different needs (Krupat, Rosenkranz, et al., 2000; Stewart, 2001). Physicians show different levels of empathic behavior to patients with different characteristics. This might be because of a negative affective empathic reaction to such patients. It is therefore of great interest to find out how physicians might overcome this influence of patient characteristics in order to be able to adapt their empathic behavior to patients' needs. In my second study I will try to shed light on this problem.

Furthermore, as described earlier (chapters 3.1 to 3.3.), physician characteristics are a central factor, which influences the empathic process. Therefore physician characteristics such as gender and self-awareness will be considered in Study 1 and 2.

Self-awareness is the ability to be aware of one's own thoughts and feelings and can be considered to be a part of physicians' affective communication skills (Novack, Epstein, & Paulsen, 1999). Also, being aware of one's own emotions has been found to be positively linked to cognitive empathy (Hall et al., 2009). Therefore, I will now describe in more detail how self-awareness can be defined and how it affects the medical consultation.

5 Self-awareness as an antecedent of empathy

Self-awareness is not a new concept but, especially in the last 30 years, has been recognized by many researchers as a beneficial and therefore important variable in the medical consultation (for patients and physicians, Brown & Ryan, 2003; Epstein, 1999; Fletcher, Schoendorff, & Hayes, 2010; Mayer & Stevens, 1994). In the existing literature researchers have used two different terms when describing the same concept: self-awareness and mindfulness (Borrell-Carrió & Epstein, 2004; Longhurst, 1988; Novack et al., 1999). However, when considering definitions of self-awareness and mindfulness, it becomes clear that these terms are conceptually different. While self-awareness is an affective communication skill, which refers to a conscious experience one's own cognitive and emotional psychological processes (Novack, 1987), mindfulness is described as a way of being (Kabat-Zinn, 1994): an awareness of the present moment as a whole (including internal and external cues).

Self-awareness is an fundamental aspect of mindfulness (Baer, Smith, Hopkins, Krietemeyer, & Toney, 2006; Epstein, 2003; Fletcher et al., 2010; Varela, Thompson, & Rosch, 1991) and while there is an increasing amount of research on mindfulness, empirical studies on self-awareness are scarce. In the following I will therefore describe the concept of mindfulness and then move on to empirical examples of mindfulness and self-awareness in the medical setting.

Being aware of one's inner experience and perception has a long history in different spiritual and religious traditions. For instance, in Buddhist religion mindfulness is one step of the eightfold path which leads to salvation (Kramer, 2007). In Christian religion mindfulness is practiced in prayers and contemplation (Thompson, 1995). Mindfulness is described to help individuals to be clearer and more accepting about reality, and to increase satisfaction and vitality through an appreciative and caring perspective of the moment (Kabat-Zinn, 1994). In the medical setting mindfulness has first been applied on behalf of the patient in the form of self-awareness meditation in different types of psychotherapy (Fletcher et al., 2010). For instance, self-awareness meditation in psychotherapy has been shown to reduce the recurrence of depressive episodes (Teasdale et al., 2000) and the risk of re-hospitalization of psychotic patients (Bach & Hayes, 2002). Likewise, Kabat-Zinn (1990) developed a full program based on mindfulness practice and meditations aimed at preventing the negative effects of working in healthcare (e.g., burnout or emotional exhaustion) and improving well-being for health professionals. These interventions are called mindfulness-based stress reduction (MBSR) and their effectiveness has been empirically proven several times (Irving, Dobkin, & Park, 2009).

5.1 Defining and measuring mindfulness and self-awareness

Different researchers have proposed several definitions of mindfulness. As a broad definition, mindfulness can be seen as a purposeful, nonjudgmental presence in the current moment (Epstein, 1999; Kabat-Zinn, 1994). This non-anxious presence includes an open awareness to one’s own cognitive and emotional processes as well as to processes occurring on the outside (Epstein, 2003; Varela et al., 1991). Other researchers have put forward multidimensional definitions of mindfulness. In this sense, mindfulness can be seen as a construct of 5 components (Baer et al., 2006):

1) Non-reactivity to inner experience
2) Observing one’s own thoughts, feelings, and sensations
3) Acting with awareness,
4) Describing with words
5) Non-judging of experience

Another definition of mindfulness includes four components as part of an interactive process (Fletcher & Hayes, 2005). These are

1) Acceptance of thoughts and feelings as they are without trying to change them

2) Defusion as the identification of thoughts, feelings and sensation as experiences that pass and change over time
3) An awareness of thoughts, feelings and sensations in the present moment
4) An observing detachment of rather than identification with one's inner experiences described as the observer self.

One component is common to all given definitions of mindfulness above. The constant term of mindfulness can be identified as the awareness and recognition of one's own thoughts and feelings. Because the emphasis of this thesis lies on physician's affective communication skills, I will focus on the emotional awareness-component of mindfulness, as the ability to be aware of one's own affective experience by paying attention to and being clear about one's own emotions.

Several questionnaires have been developed to measure mindfulness by means of self-report. According to Kabat-Zinn (1994) one should think of mindfulness as a way of being, rather than something individuals occasionally do when sitting down for meditation or something an individual can put forward as an attitude. Mindfulness is a deeply felt being in touch with one, several or all aspects of the present moment. Therefore most questionnaires have approached measuring mindfulness as a trait- rather than a state-like process. However, other researchers argue that mindfulness is an ability that can be practiced and learned (Baer, Smith, & Allen, 2004), therefore mindfulness can also be seen as a state-like ability that might be influenced by contextual factors. Because all concepts of mindfulness include self-awareness, the above mentioned assumptions are also valid for self-awareness.

The Mindful Attention and Awareness Scale (MAAS, Brown & Ryan, 2003) measures one dimension of mindfulness which is an individual's ability to pay attention and be aware of the experience of the present moment. There are 15 items that evaluate the frequency with which respondents are mentally absent, or run on “auto-pilot” (i.e., doing something automatically, without paying attention).

The Kentucky Inventory of Mindfulness Skills (KIMS, Baer et al., 2004; Baer et al., 2006) is a multidimensional instrument, assessing 4 facets of mindfulness on a 39 item scale. These facets are observing (i.e., paying attention and being aware of experiences in the present moment without judging), describing (i.e., a labeling of thoughts and feelings which is meant to be descriptive rather than judgmental in order to be able to shift the attention back to the present moment), acting with awareness (i.e., paying full attention to the action one is currently involved in), accepting without judgment (i.e., allowing events, thoughts and feelings to occur without judging or trying to change them). Respondents indicate how much items correspond to their personal experience.

The Toronto Mindfulness Scale (Lau et al., 2006) measures self-awareness as a state-like event, meaning an intentional action of directing one's attention and awareness to experiences in the present moment exclusively. The TMS consists of the two subscales curiosity, being curious and open to experiences in the present moment, and decentering, having a detached, decentered perspective on one's own thoughts and feeling instead of identifying completely with them. Curiosity is assessed by 7 items like "I was curious about each of the thoughts and feelings that I was having". Decentering is assessed by 8 items such as "I experienced my thoughts more as events in my mind than as a necessarily accurate reflection of the way things 'really' are".

The Trait Meta Mood Scale (TMMS, Salovey, Mayer, Goldman, Turvey, & Palfai, 1995) has originally been developed to assess emotional intelligence. When looking at the subscales, however, parts of this scale can be perfectly used to assess self-awareness about one's affective experience. Subscales are attention to emotions (13 items, e.g., "I pay a lot of attention to how I feel"), clarity of emotions (11 items, e.g., "Sometimes I can't tell what my feelings are"; reversed item), and emotional repair (6 items, e.g., "If I find myself getting mad, I try to calm myself down"). To assess the awareness dimension of self-awareness with regard to one's own emotional experiences the subscales attention and clarity are suitable. The subscale repair, however, might be a reversed scored indicator of the observer or decentering dimension, which describes the ability to accept thoughts and feelings as they are without trying to change them.

5.2 Effects of physician self-awareness in the medical encounter

According to Epstein (2003) mindfulness allows practitioners to step out of their routine ways of perception and interpretation and enables action with clarity and insight, and therefore empathic care. Similarly, an early study by Holm and Aspegren (1999) has shown that emotional self-awareness can be trained. The authors looked at emotional self-awareness in two groups of medical students measured at three different times during their medical studies. Emotional self-awareness was assessed as the ability to aware of one's own feelings. One group of medical students received training in communication skills, interviewing techniques, and problem based learning additional to the traditional medical classes, while the other group followed the course without such supplementary training. Medical students who participated in the additional trainings scored higher on emotional self-awareness than students from the standard medical education group. The authors argue that training in communication skills prompted students' self-confrontation with their feelings as well as their aptitude to actively look for solutions on their own, which resulted in increased emotional self- awareness. Self-awareness is thus trainable and might therefore be affected by the influence of context factors.

Most research has concentrated on the benefits of self-awareness on physicians' functioning (Irving et al., 2009). After an intervention using MBSR techniques nurses reported higher scores of self-awareness, satisfaction of life, and self-reported health (Poulin, Mackenzie, Soloway, & Karayolas, 2008). Krasner and colleagues (2009) studied primary care physicians before and after a training involving self-awareness mediation and exercise. They found significant relations between physicians' improvements of self-awareness, decrease of burnout, and improvements in mood disturbance, emotional stability and conscientiousness after the training.

Fewer studies have looked at effects of self-awareness on physicians' communication skills or patient outcomes. A positive relationship between self-awareness and physician communication skills was found in psychotherapy: psychotherapists received higher patient ratings on clarity communication and problem solving as compared to a control group of therapists who didn't follow the self-awareness course (Grepmair et al., 2007). Additionally, patients of the therapists trained in self-awareness indicated better health outcomes measured as symptom resolution.

5.3. Effects of self-awareness on empathy

If self-awareness is beneficial for the physician's communication skills it might also facilitate physician empathy as a core physician communication skill. Most patients desire an empathic communication style by their physician (Schattner, Rudin, & Jellin, 2004) therefore it is of great importance to identify factors which decrease empathy (such as burnout or stress) in order to eliminate these factors. At the same time is vital to find factors, which facilitate physician empathy. For instance, physician's personality can promote empathy: physicians who hold more pro-social and less stereotypical beliefs are also more empathic (Carmel & Glick, 1996). However, physicians with more pro-social and less stereotypical attitudes are also more prone to feelings of emotional exhaustion and burnout (Carmel & Glick, 1996). Another concept which is strongly believed to reduce stress and foster empathy is physician self-awareness (Candib, 1995; Goldstein, 1994; Novack, 1987).

In fact, self-awareness is believed to be an essential prerequisite of empathy (Candib, 1995; Goldstein, 1994; Novack, 1987). Researchers argue that it is not possible to understand other's thoughts and feelings without understanding or being aware of one's own thoughts and feelings (Kagan & Schneider, 1987). For instance, when confronted with an angry, demanding patient a physician might experience a negative affective empathic reaction (such as stress or anger). Such negative emotions might leak through the physician's nonverbal behavior (Ekman & Friesen, 1974) toward the patient and thus have a negative impact on the patient. If the physician is able to be aware of his negative emotional reactions (thus being emotionally self-aware) he or she might be able to respond to the patient with clarity and insight, in a non-judgmental way. He or she might thus be better able to understand the patients' feelings and behave empathically with the patient. This line of reasoning is used by some researchers arguing that self-awareness could help physicians to overcome disparities when giving empathic care to specific groups of patients (such as difficult, demanding patients or patients from racial minorities) (Halpern, 2007; Johnson, Roter, Powe, & Cooper, 2004; Steinmetz & Tabenkin, 2001). It is likely that difficult or demanding patients compared with neutral patients have different needs concerning the physician's affective communication style. A demanding patient might be more angry, worried, or anxious, or might be less motivated to participate in the medical interaction than a neutral patient. If a physician is little emotionally self-aware his negative emotional experience in reaction to the demanding patient might hamper the physician's empathic reaction. Consequently, the physician is not able to exhibit the empathic behavior the demanding patient would need despite his or her unpleasant manner of communicating.

It would be especially interesting to test the relation between emotional self-awareness and behavioral empathy, because physicians' empathic behavior influences the patient in many ways. Moreover, training self-awareness has been shown to improve patient outcomes, but it is unclear whether the improvement in patients' evaluation of their doctors is due to actual changes in physicians' behavior (e.g., empathic behavior) or to some other change in physicians' way of taking care induced by the self-awareness training. Also, even though self-awareness is considered a means to overcome disparities in empathic communication between specific groups of patients (e.g., difficult patients with a demanding communication style), there is a lack of research on the relation between self-awareness and behavioral empathy including patients' characteristics as an important variable. Therefore in my second study I will investigate the following research question:

IIIb. Are physician characteristics related to different components of empathy?

IIIb1. Is physician emotional self-awareness related to behavioral empathy depending on patient communication style?

Additionally, if a positive relation between emotional self-awareness and intrapersonal components of empathy could be established, this would be of great relevance for the delivery of health care, because empathy has been shown to improve patient outcomes (Canale et al., 2012; Kim et al., 2004). However, only few studies have tested this association. Two studies found a positive correlation between self-awareness and cognitive empathy (Hall et al., 2009; Krasner et al., 2009). However, one of the studies measured emotional self-awareness but used only one measure of empathy (Hall et al., 2009) and the other one used a global measure of self-awareness (cognitive and emotional combined) and only physicians' self-evaluations of empathy but no objective or patient perspective measure. Another study on physician training showed that participants of a self-awareness training tended to be more empathic after the training (Beddoe & Murphy, 2004). The training was a MSRB training consisting of guided self-awareness meditations and journal assignments concerning participant's daily emotional experience. Empathy was measured in forms of cognitive and affective empathy both showing tendencies to have improved after training. However, empathy levels of participants were very high before the training already and this might have affected the results.

Empirical results on the effects of emotional self-awareness on healthcare-providers' empathy are scarce and many questions remain unanswered. For instance, it is not clear how emotional self-awareness is related to other empathic components like affective or behavioral empathy. Altogether there is a lack of research linking emotional self-awareness and cognitive and affective empathy in order to test theoretical assumptions about this relation. I will do this in my second study with the following research question:

IIIb2. Is emotional self-awareness related to cognitive and affective empathy?

6 Summary of research questions

In my thesis I aim at investigating 3 global research questions. Hereunder I will briefly list global and specific research questions and indicate in which study they will be addressed.

Research question

I How are different components of empathy related to patient outcomes?

- Ia. How are cognitive, affective, and behavioral empathy related to patient satisfaction and trust?

Research question

II How are different components of empathy interrelated?

- IIa. How do cognitive, affective, and behavioral empathy intercorrelate?

Research question

III How are antecedents of empathy related to different components of empathy?

- IIIa. How are patient characteristics related to different components of empathy?
  - IIIa1. How is patient health related to cognitive, affective, and behavioral empathy?

- IIIb How are physician characteristics related to different components of empathy?
  - IIIb1. Is emotional self-awareness related to behavioral empathy depending on patient communication style?
  - IIIb2. Is emotional self-awareness related to cognitive and affective empathy?

In study 1 I address research questions Ia., IIa., and IIIa1. To do this, we videotaped physicians in their practices in real consultations with different patients. We measured physicians' cognitive, affective, and behavioral empathy along with patients' satisfaction, general health status and trust.

In study 2 I address research questions IIa., IIIb1., and IIIb2. To do this, we videotaped medical students in two different interviews with standardized patients. We assessed medical students' emotional self-awareness and cognitive, affective, and behavioral empathy.

7 Analyzing the relationship between different components of clinical empathy and patient satisfaction, trust, and patient health status - Study 1

A manuscript about Study 1 titled "Empathy in All its Facets: How Different Components of Physician Empathy Relate to Patient Satisfaction, Trust, and General Health" has been prepared and will be submitted for publication to the Journal of Psychology & Health in June 2013. The authors are Christina Klöckner Cronauer and Marianne Schmid Mast.

In Study 1 we aimed at analyzing the relationship between different components of physician empathy and patient outcomes. Specifically, Study 1 addresses research question Ia.: How are cognitive, affective, and behavioral empathy related to patient satisfaction and trust? Furthermore, we investigated the relationship between patient characteristics and clinical empathy (research question IIIa1. Is patient health related to cognitive, affective, and behavioral empathy?). Also, we tested the correlation between different components of empathy (research question IIa: How do cognitive, affective and behavioral empathy intercorrelate?). Cognitive empathy was operationalized as nonverbal sensitivity and emotional decoding skill, affective empathy as shared emotions and encoding of one's own emotions, and behavioral empathy as empathic verbal and nonverbal behavior.

7.1 Method

7.1.1 Participants

A total of 41 physicians (34 male physicians) participated in the study. Physicians were on average 44.95 years old (*SD* = 10.42) with a mean work experience of 16.27 years (*SD* = 9.76). They were mostly general practitioners (*n* = 28), but also orthopedists (*n* = 2), allergists (*n* = 1), rheumatologists (*n* = 1), chiropractors (*n* = 4), cardiologists (*n* = 1), and surgeons (*n* = 4). Physicians' nationality was Swiss (n = 35), French (n = 2), Lebanese (n = 1), Belgian (n = 1), Swiss and German (*n* = 1), and Swiss and Chilean (*n* = 1). Physicians in the sample were videotaped with up to 5 of their patients (*M* = 3.07, *SD* = 1.09). Acquaintance between physicians and patients was moderate (*M* = 2.86, *SD* = 1.28, on a scale from 1 "not well at all" to 5 "very well" with 3 as the middle point).

Patients (*N* = 126) agreed to having their consultations videotaped without them being seen in the video. They were recruited either by their physicians on short-term notice or by the experimental staff directly in the waiting rooms. Patients (67 male) were on average 47.19 years old (*SD* = 17.27). Most patients had completed an apprenticeship (53.17%), some had high school degrees (11.9%), other kinds of diplomas and grades after high school (19.84%), and university diplomas (11.9%), with four patients not specifying their educational level. Most patients were of Swiss nationality (66.67%). Other nationalities were Italian (6.35%), Portuguese (6.35%), Spanish (3.17%), French (2.38%), Swiss and French (1.59%), Swiss and

Norwegian, Cameroonian, Swiss and Peruvian, French and American, Bosnian, Cyprian, Swiss and Albanian, Swiss and Portuguese, Mauritian, Ethiopian, Congolese, Brazilian, Romanian, Swiss and Spanish, and Dutch (0.79% each). Two patients did not specify their nationality.

Patient inclusion criteria were: Patients had to speak sufficiently fluently French to participate in the consultation actively and to understand the aims of the study. All consultations treated non-chronic problems. Interactions with chronic patients were only included in the study if the consultation was a routine check-up or if the reason for the visit was related to a different health issue than the chronic disease. In the same vein, no bad news delivery or palliative care consultation was included, because these have different emotional impacts and content than routine medical visits (Ford, Fallowfield, & Lewis, 1996; Roter, Hall, & Katz, 1987).

7.1.2 Procedure

Upon arrival in the medical practice, the experimenter installed the camera so that the physician would be videotaped but the patient could not be seen on the video. Each physician was filmed during an entire day in his/her practice. The physician signed a written informed consent form, declaring his/her agreement with being videotaped. Another consent form swore the experimenter to secrecy about all content exchanged during the consultation and was signed by the experimenter. Patients signed written consent forms regarding their participation and explicitly consented to the recording of their voices. Questionnaires for patients and physicians were administered after each consultation (described in more detail below). At the end of the study day, the physician filled in an additional questionnaire (nonverbal sensitivity, age, gender, nationality, work experience, specialty, and acquaintance with the patient). For 5 physicians the experimenter came back on a consecutive day to videotape more patients due to emergency interventions the physician had to attend to. For all other physicians, video recordings were completed during one day.

7.1.3 Measures

7.1.3.1 Clinical empathy

Clinical empathy was assessed with 6 different measures described hereafter. Table 1 shows the binary correlation coefficients among the empathy measures.

Nonverbal sensitivity. We assessed nonverbal sensitivity with the Diagnostic Analysis of Nonverbal Accuracy (DANVA, Nowicki & Duke, 1994). The DANVA consists of 24 pictures of faces each displaying either fear, sadness, happiness, or anger at different levels of intensity. The test-taker is asked to indicate for each of the pictures which emotion the face is expressing. The test was administered on a laptop and each picture was shown for 2 seconds. The number of correct answers was summed up. A higher score indicates more nonverbal sensitivity (*M* = 17; *SD* = 2.66).

Emotional decoding skill. Physicians estimated for each patient how he/she felt during the consultation and each patient rated his/her actual feelings during the consultation. The instrument applied was the Profile of Mood States (POMS, McNair, Lorr, & Droppleman, 1971) with the subscales anger/tension, depression/dejection, fatigue/inertia, and vigor/activity (5 items each). Sample items are “angry” or “tense” (anger/tension), “sad” or “discouraged” (depression/dejection), “exhausted” or “dull” (fatigue/inertia), and “happy” or “lively” (vigor/activity). A Likert scale from 1 to 5 was used (1 = not at all, 5 = very much). Subscale reliabilities for the POMS filled in by the physicians guessing their patients’ emotions ranged from α = .83 to α = .87 (*Mdn alpha* = .87). Subscale reliabilities for the POMS filled in by patients about their own subjective feelings ranged from *α* = .66 to *α* = .80 (*Mdn alpha* = .74).

For each of the four emotional dimensions, the absolute difference between a physician’s estimation of a patient’s feelings and a patient’s subjective feelings was calculated. We then multiplied the mean of these absolute differences across the four dimensions by (-1) so that higher numbers indicate better physician emotion decoding skill (*M* = -0.70; *SD* = -0.46). To illustrate, a mean difference of 0 indicates that the physician was perfectly able to guess the patient’s feeling during the medical encounter.

Due to the non-experimental study design, it is vital to control for possible confounding variables in the analysis. Because we measured physicians’ decoding skill in a real interaction, decoding skill is affected by the patient’s emotional expressiveness. Therefore one needs to control for this potential confounding factor. To do this an uninvolved third observer judged the patient’s level of expressiveness based on the videotaped interaction using a Likert scale from 1 “not expressive at all” to 5 ”very expressive” (*M* = 3.14, *SD* = 1.24). Coding-reliability with a second coder was done on 10 videos (*r* = .74). Note that because of confidentiality issues, we opted not to film the patients, however, their voices could still be heard on the videotape (and they gave explicit permission for that). The patient expressiveness ratings were thus based on the nonverbal vocal cues and the verbal communication.

Shared emotions. We measured the extent to which the physician and the patient shared the same emotions by having both patients and physicians indicate how they had felt during the medical encounter. Averaged absolute differences across the POMS dimensions multiplied by (-1) yielded a score of shared feelings between the physician and his/her patient (*M* = -0.58, *SD* = -0.39). A high number indicates a higher degree of shared feelings. Alphas for physicians' feelings ranged from *α* = .76 to *α* = .82 (*Mdn alpha* = .77) (see "Emotional decoding skill" for alphas on patients' feelings).

Emotional encoding skill. For each consultation, we measured the physicians' accuracy in displaying their own emotions by having physicians report which emotions they thought having conveyed to the patient on the POMS questionnaire. At the same time, patients indicated which emotions they had perceived from their physician's expressions. Mean alphas for the physicians' evaluation of their emotional expression ranged from *α* = .62 to *α* = .84 (*Mdn alpha* = .76). For patients' evaluations of physicians' feelings, alphas ranged from *α* = .67 to *α* = .74 (*Mdn alpha* = .71). Similarly to the procedure used for decoding skill, the mean of the absolute differences of corresponding POMS dimensions was created and multiplied by (-1). Thus, higher numbers indicate better physician emotion encoding skills (*M* = -0.53, *SD* = -0.39).

Verbal empathy. Physicians' speech was coded using the Roter Interaction Coding System (ROTER LARSON), specifically developed to analyze patient-provider interactions. To assess verbal empathy we created a verbal empathy cluster based on similar clusters (called psychological exchange) used by (Eide, Graugaard, Holgersen, & Finset, 2003; Hall et al., 1994). The verbal empathy cluster contained the following physician RIAS categories: "empathy", "shows concern or worry", "reassures or shows optimism", "checks for understanding/paraphrases", "asks psychosocial or lifestyle questions", "gives psychosocial or lifestyle information", and "counsels on psychosocial or lifestyle topics". Verbal empathy therefore covers a broad array of physician empathic talk. Two trained RIAS coders coded 5 of the videos together and then analyzed 10 of the videotaped consultations separately. Coding reliability was not established for three categories ("empathy", "counsels on psychosocial or lifestyle topics", "shows concern or worry"), which in total occurred less than 2%. This is normal procedure for RIAS coding (Roter, Lipkin, & Korsgaard, 1991; Van den Brink-Muinen et al., 1999). For the remaining categories Pearson's r ranged from *r* = .84 to *r* = .96 (*Mdn r* = .92). Each coder then analyzed half of the video material. Single RIAS categories scores were divided by the total amount of physician utterances in a specific encounter for standardization. The frequencies in the RIAS empathy categories were summed up so that high numbers indicate more verbal empathy (*M* = 0.26; *SD* = 0.11, *range*: 0.04 - 0.54). Coding reliability for the overall verbal empathy cluster (correlation of ratings from coder A and B for the summed up empathic cluster categories across the ten videos) was excellent ($r = .95$).

Nonverbal empathy. From the current literature on nonverbal behavior in the patient provider literature we identified gazing, nodding, and smiling as variables conveying empathy (Hall, Harrigan, & Rosenthal, 1995) which subsequently were coded from the videos. Gazing was coded as the duration of the physician's gaze toward the patient. Nodding and smiling were coded as frequencies. After two coders had established the inter-rater reliability on 10 videos ($r_{\text{gazing}} = .99$; $r_{\text{smiling}} = .97$, and $r_{\text{nodding}} = .97$), one coder continued to code the rest of the videos. For standardization frequencies and duration of nonverbal behavior were divided by the length of the consultation. Because nonverbal behaviors like nodding or smiling tend to occur very infrequently during a medical interaction, we created a scale consisting of gazing, smiling, and nodding ($\alpha = .85$) to strengthen the validity of our nonverbal empathy measure. To form the nonverbal empathy measure, the behavioral scores were transformed into standardized z-values before averaging. Higher numbers indicate more nonverbal empathy (*M* = 0.86, *SD* = 0.48, *range:* 0.14 – 2.46)

Table 1

Binary correlations between the empathy variables

	Nonverbal sensitivity	Decoding Skills	Encoding Skills	Shared emotions	Verbal Empathy
Decoding skills	-0.04	-			
Encoding Skills	0.11	.41***	-		
Shared emotions	0.06	.55***	.44***	-	
Verbal Empathy	-0.15	-.14	-.12	-.20*	-
Nonverbal empathy	-0.01	<.00	-.10	-.02	.15

Note. Depicted are Pearson *r's.* $^{*}p < .05$. ***< .001.

7.1.3.2 Patient variables

All patient variables were measured on a Likert scale from 1 to 5, unless stated otherwise. The standard question was how much a participant agreed with a questionnaire item (5 indicating highest agreement). Item scores were averaged to obtain the score on the scale or subscale. Scale reliabilities are indicated as Cronbach's alphas (α). Table 2 shows the binary correlations among the two patient outcome variables (i.e., satisfaction and trust) and patient health. There was a significant negative relation between satisfaction and general health. The inexistent or low correlations among the variables justifies to treat them separately in the analyses.

Patient satisfaction. We measured patient satisfaction with 4 items taken from the Patient Satisfaction Survey (Langewitz, Keller, Denz, Wossmer-Buntschu, & Kiss, 1995): "The physician seemed competent", "I am satisfied with the way this physician interacted with me", "I think this physician has given me important information/advice", and "I am satisfied with this consultation". Patients were highly satisfied with their physicians ($\alpha = .74$; $M = 4.82$, $SD = 0.32$).

Patient trust. We used 10 items (3 reversed items) from the trust scale by Thom, Ribisl, Stewart, Luke, and The Stanford Trust Study Physicians (1999), to assess patient trust in the physician. Sample items were "I think I can trust this physician" or "Sometimes I didn't trust my physician's judgment and I would like to have a second opinion" (reverse scored). Patients highly trusted their physicians ($\alpha = .76$, $M = 4.67$, $SD = 0.42$).

General health status. We assessed general health with 4 items on general health perception from the Medical Outcomes Study Short-Form 36 (Stewart, Hays, & Ware, 1988). Patients evaluated their general health with two positively and two negatively scored statements: "I'm as healthy as anybody else", "I think I'm in excellent health", "I've been feeling bad recently" (reverse scored), and "I am sick often" (reverse scored). Patients considered themselves as fairly healthy ($\alpha = .76$, $M = 3.28$, $SD = 1.09$). At the end of the questionnaire patients indicated their age, gender, nationality, and educational status, were thanked and dismissed.

Table 2

Binary correlations between the outcome variables

	Satisfaction	Trust
Trust	.65***	-
General health	-.18*	-.12

Note. Depicted are Pearson *r's*. $^{*}p < .05$. ***< .001.

7.1.3.3 Strategy of Analysis

In order to account for the higher risk of a Type-I-error (finding an effect when truly there is none) that is inherent to nested data (here, patients are nested within physicians), multilevel modeling was applied, using simple hierarchical random intercept models. Firstly, physician and patient characteristics were tested for their potential influence on the two consultation outcome variables (i.e., satisfaction and trust) and on patient general health. With the aim of simplifying the models, the variables of physician specialty and nationality, patient nationality and educational level were dichotomized. That means that general practitioners were compared to all other specialties, Swiss physicians to all other nationalities, Swiss patients to all other nationalities and patients having completed an apprenticeship to all other educational levels. Secondly, separate models were calculated for each of the two consultation outcomes and for patient health for each of the different aspects of physician empathy separately (controlling for relevant patient or physician characteristics). Results are specified as regression coefficients (*RC*), followed by the probability value (*p*), and the 95% confidence interval (*CI*).

7.2 Results

In order to control for the patient and physician characteristics in the main analysis but at the same time not to overload the model with too many variables and thus jeopardize the statistical power of the analyses (Maas & Hox, 2005), we first tested which physician and patient characteristics affected the dependent variables. Separate models were calculated for patient satisfaction, trust, and general health, once with physician characteristics such as gender, age, nationality, specialty, and work experience as predictors and once with patient characteristics such as gender, age, nationality, educational level, and acquaintance. Results are displayed in Table 3. Patients of female physicians were more satisfied, had more trust, and reported better general health than patients of male physicians. Female patients reported having worse general health than male patients. None of the other physician or patient characteristics showed a significant effect. Although general health was negatively related to patient satisfaction (Table 2), when controlling the models on patient satisfaction for patient general health, the results remained unchanged.

Only physician or patient characteristics that were significantly related to the consultation outcome variables (satisfaction or trust) or to general patient health were included as control variables in the specific main analyses (i.e., physician gender in all models on patient satisfaction, trust, and general health, patient gender in all models on general health). Furthermore, all models testing the effect of physician decoding skill on patient outcomes and general health were additionally controlled for patient emotional expressiveness.

The main analyses consisted of testing the effects of each of the six physician empathy measures (i.e., nonverbal sensitivity, decoding skill, shared emotions, encoding skill, verbal, and nonverbal empathy) separately for satisfaction, trust, and general health (while controlling for the aforementioned patient and physician characteristics).

Table 3

Relations between dependent variables and physician and patient characteristics

	Satisfaction		Trust		General health	
	RC	*95% CI*	*RC*	*95% CI*	*RC*	*95% CI*
Physician characteristics						
Gender	0.29***	0.11; 0.46	0.35***	0.14; 0.56	-0.82***	-1.48; -0.17
Age	0.01	-0.01; 0.02	0.01	-0.01; 0.02	-0.01	-0.06; 0.03
Nationality	0.16	-0.02; 0.35	0.08	-0.15; 0.30	-0.67	-1.37; 0.04
Specialty	-0.03	-0.09; 0.04	-0.05	-0.12; 0.03	0.21	-0.02; 0.44
Work experience	0.01	-0.01; 0.02	0.01	-0.01; 0.02	0.03	-0.02; 0.08
Patient characteristics						
Gender	0.01	-0.10; 0.11	0.04	-0.10; 0.18	-0.39*	-0.74; -0.04
Age	<0.01	>-0.01; <0.01	<0.01	>-0.01; 0.01	-0.01	-0.02; <0.01
Nationality	0.05	-0.07; 0.17	-0.07	-0.23; 0.08	0.22	-0.16; 0.60
Educational level	-0.05	-0.10; 0.01	0.01	-0.07; 0.09	0.12	-0.07; 0.30

Acquaintance	0.01	-0.03; 0.06	0.01	-0.05; 0.06	-0.11	-0.27; 0.05

Note. *RC* = regression coefficient. *CI* = confidence interval.

$^{*}p < .05$. ***< .001.

Results are shown in Table 4. Concerning cognitive empathy nonverbal sensitivity was not significantly related to satisfaction, trust, or general health. Physicians' decoding skill was better when patient's were in better health. Both affective empathic skills (physicians' skill to share patients' emotions and physicians' encoding skill) were better with patients who had better general health. Put in another way: when talking to sicker patients, physicians were less able to decode patients' emotions, shared fewer emotions with their patients, and displayed their emotions less accurately to their patients. When looking at behavioral empathy physicians showed significantly more verbal empathy toward sicker patients. Also, the more verbal empathy a physician showed, the less the patient trusted the physician. Also, a marginally significant effect shows that patients of verbally emphatic physicians were less satisfied. Nonverbal empathy was not related to any of the patient variables.

Table 4

Associations between different aspects of empathy and patient outcomes, and patient general health

	Satisfaction		Trust		General health	
	RC	*95% CI*	*RC*	*95% CI*	*RC*	*95% CI*
Cognitive empathy						
Nonverbal sensitivity	<0.00	-0.03; 0.02	-0.01	-0.04; 0.02	-0.03	-0.11; 0.06
Decoding skills	-0.03	-0.15; 0.09	0.03	-0.14; 0.19	0.63***	0.26; 1.01
Affective empathy						
Shared emotions	0.08	-0.05; 0.22	0.13	-0.06; 0.32	0.63**	0.19; 1.07
Encoding skills	-0.05	-0.19; 0.09	0.01	-0.18; 0.20	0.46*	0.02; 0.90

Behavioral empathy						
Verbal empathy	-0.46†	-0.97; 0.05	-0.72*	-1.40; -0.04	-1.96*	-3.62; -0.31
Nonverbal empathy	-0.01	-0.02; >0.00	>0.00	-0.01; 0.01	0.01	-0.02; 0.05

Note. RC = regression coefficient; CI = confidence interval.

$^{\dagger}p<.10.^{*}p < .05.\ ^{**}p < .01.^{***}\ p < .001.$

Because decoding skill, shared emotions, and encoding skill were highly inter-correlated (Table 1), we tested whether a composite of these three measures ($\alpha = .72$) would lead to the same results as each single variable. Indeed, the results remained unchanged with physicians showing less empathy with sicker patients (*RC* = -0.92, *p* = .001; 95% *CI* = -1.44; -.40).

7.3 Discussion

We tested how different components of clinical empathy affect patient outcomes such as satisfaction and trust and how patient health affects the different facets of clinical empathy. We distinguish between cognitive, affective, and behavioral empathy. Cognitive empathy was measured in terms of nonverbal sensitivity (i.e., accurate recognition of others' feelings based on nonverbal cues) and in terms of emotional decoding skill (i.e., accurate recognition of patients' feelings based on patients' verbal and nonverbal cues). Affective empathy was measured in terms of shared emotions (i.e., the skill to feel with the patient) and emotional encoding (i.e., the skill to accurately express emotions). Behavioral empathy was measured in terms of physician verbal and nonverbal behavior generally perceived as empathic by the patient (e.g., smiling and nodding for nonverbal behavior and making empathic remarks for verbal behavior). To our knowledge, this is the first study that has simultaneously looked at such a broad variety of empathy concepts and measures in one and the same study, has linked them with patient outcomes, and has tested how general patient health affects them.

Our results show that indeed the different empathy concepts and operationalizations seem to measure different things because the relations with the outcome variables as well as the link with patient general health are not systematic and in fact, relatively few relations emerged. One of these results shows that the more verbally empathic the physician is, the less the patient trusts the physician. This is intuitively surprising but maybe patients perceive a consultation with many verbal empathic remarks by the physician as too emotional. This is in line with research showing that patients did not appreciate an overly emotional communication style by the physician in a bad news delivery situation (Schmid Mast et al., 2005). It seems that patients do not appreciate a too empathic or too emotional communication style by the physician. Maybe this is because patients have two needs: a need to know and understand and a need to be known and understood (Engel, 1992). The need to know and understand refers to medical information exchange (i.e., patients receive information about what the illness is, what the consequences are, and how it can be treated). The need to be known and understood refers to the quality of the relationship between physician and patient (i.e., patients perceive physicians' communication style as conveying warmth and empathy). Because we measured the relative amount of empathic remarks as an indicator of verbal empathy, more verbal empathy automatically means less medical information. Therefore patients' need for information might not have been satisfied in more verbally empathic consultations. Moreover, patients base their trust on their perceptions of physician's competence (Hall, Dugan, Zheng, & Mishra, 2001; Mechanic, 1998) and a physician who focuses on empathic talk rather than medical information might seem less competent to the patient.

The lack of a relation between other aspects of physician empathy and patient outcomes hints to the delicate balance of the right amount of pro-social or empathic care in a given situation with a given patient. Physician empathy is not always positive for the patient. Graugaard and Finset (2000) found that patients' with high trait anxiety had less positive emotional reactions when talking to a patient-centered, empathic physician whereas patients with low-trait anxiety had more positive emotional reactions. Also, there was no clear effect on highly anxious patients' preferences for a specific communication style by the doctor, but a tendency was found that they preferred a more disease-centered less empathic style (Graugaard & Finset, 2000). Similarly, hostile sexist patients were found to have less positive consultation outcomes regardless of the physician's level of empathic or patient-centered communication (Klöckner Cronauer & Schmid Mast, under review). Maybe the effect of physician empathy on patient outcomes depends on the patients' personality characteristics and attitudes that were not assessed in our study.

Physicians' nonverbal sensitivity did not affect patient outcomes unlike in other studies (DiMatteo, Taranta, Friedman, & Prince, 1980; Hall et al., 2009). However, in these studies participants were either medical students or physicians in training. In our sample physicians were mostly experienced general practitioners. Maybe during medical training physicians are especially anxious to perform well and therefore pay higher attention to patient’s nonverbal cues. In line with our results, Roter and colleagues (Roter et al., 2008) measured nonverbal sensitivity in practicing genetic counselors and did not find a significant effect on patient satisfaction.

Nonverbal empathy was not related to patient satisfaction or trust. This validates other results reported in the literature (Hall et al., 1996; Van Dulmen, Verhaak, & Bilo, 1997) showing that physicians’ smiling, nodding, and gazing were not related to patient satisfaction.

Do our results mean that physician empathy is not important for patients? Despite the fact that physician empathy, regardless of how it was measured or which facet was investigated, did mostly not affect patient outcomes, we still believe that it is important for patients. Maybe the empathic communication style in a specific consultation does not have a direct influence on patient global satisfaction and trust. On the one hand it could be that satisfaction depends more on whether or not the patient understands his or her medical problem and knows how to deal with it. In fact, physician verbal task behaviors, such as gives information or orientation, and perceived proficiency were a better predictor of patient satisfaction than socio-emotional behaviors, such as personal comments or shows agreement (Roter et al., 1987). On the other hand it could be that physician empathy influences patient satisfaction and trust through mediator variables such as partnership as perceived by the patient (Kim, Kaplowitz, & Johnston, 2004). Likewise, the extent to which a patient trusts his or her physician might depend more on how medically competent the patient perceives the doctor to be and not so much on the doctor’s empathy. Physician empathy might affect patient outcomes on a more long-term basis, such as increased adherence to the treatment recommendations or better appointment keeping in the future. Indeed, DiMatteo and colleagues (1986) showed that physicians with better nonverbal decoding skills had patients who were more likely to keep their appointment. Future research might want to investigate the effects of physician empathy on adherence, appointment keeping, and health improvement.

When seeing sicker patients, physicians were less empathic (i.e., less able to recognize patients’ emotions, to feel with patients, and to communicate emotions to patients so that they would understand them). Nevertheless physicians made more empathic remarks to their sicker patients. It seems that physicians can act empathically without having an accurate idea about how patients feel or think. Maybe physicians are aware of the increased physical and psychological distress in sicker patients. As a reaction, especially rather experienced physicians (as in our sample) might put on a kind of professional empathy with sicker patients. This kind of professional empathy might rather be the result of many years of experience in medical interactions than a moment-to-moment evaluation of the patients' thoughts and feelings.

Why do sicker patients hamper the physician's cognitive and affective empathy? Maybe sicker patients put greater cognitive demands on the physician. There might be much more at stake in a sicker patient and the medical problem is most likely more complex. This might put a cognitive load on the physician that then takes away cognitive capacity to correctly infer the patient's emotional state and blocks the expression of the physician's emotions.

That physicians verbally expressed their empathy more to sicker patients is in contrast to Hall and colleagues' (1998) findings where physicians were less verbally empathic with sicker patients. Hall and colleagues assessed social talk as an independent empathic physician behavior and explained that with sicker patients, physicians might focus more on medical talk leaving less room for social talk in the consultation. In our study, verbal empathy was measured as the amount of empathic talk, combining empathic, social, and psychosocial talk, as a rather comprehensive measure of verbal empathy. It could be that physicians in our study made more social and psychosocial remarks because sicker patients might be more concerned and distressed about their health and therefore put forward more psychosocial issues. So, instead of increasing medical talk, physicians in our sample might have engaged in more psychosocial talk with sicker patients. This explanation is in line with data from Hall and colleagues (1998) who measured psychosocial talk as an independent variable: physicians significantly increased the amount of psychosocial talk when with patients in worse psychological health.

Future research should find out why physicians find it difficult to be on the same wavelength with sicker patients. For instance, it might be especially tiring for the physician to be empathic with a sicker patient, and by not being empathic physicians' are trying to avoid compassion fatigue (Benoit, Veach McCarthy, & LeRoy, 2007). Raising awareness could help physicians to identify consultations in which this problem might apply and thus might help to counteract automatic processes by active reflection, e.g., physicians might put an extra effort in being attentive to sicker patients' psychosocial issues. Furthermore, in order to improve authentic communication, the important role of nonverbal communication in the medical encounter should be integrated in communication skills trainings for physicians.

7.3.1 Limitations

We used a convenience sampling method, which enhances the risk of bias. For instance, physicians in our sample might have shared a common interest in communication in the medical encounter (which is why they were motivated to participate). Therefore it is possible that they paid attention and put effort into the way they communicated with their patients. However, if this was the case, then our finding that physician's empathy is partly hampered with sicker patients should be taken even more seriously. Also, one should be careful when generalizing our findings to other populations and more research is needed to validate our results.

Furthermore, our patients were very satisfied with their doctors. This is a finding commonly reported in the patient satisfaction literature (Williams, Coyle, & Healy, 1998). Our satisfaction scale was based on a well-validated scale for general satisfaction with how the physician treated the patient (Langewitz et al., 1995). Reasons for patients' high levels of satisfaction could be patients' social desirability, or tendency to positively overrate choices they have made, such as choosing a specific doctor (Roter & Hall, 1992). Disregarding the reasons why, we believe that patients did respond truthfully to the questions of how satisfied they were with their medical consultation and thus think that the satisfaction ratings are a valid representation of patients' perceptions. However, some researchers have suggested reducing the risk of high satisfaction ratings by measuring different aspect of satisfaction (e.g., satisfaction with physician's personal style, or technical competence) (Brédart et al., 2002). Future research might want to replicate our findings using a more differentiated satisfaction scale.

7.3.2 Practice implications

Sicker patients might be at risk because their psychosocial issues might be left unrecognized after the medical consultation due to physicians' lack of cognitive empathy with sicker patients. This is even more alarming considering the thought that especially sicker patients might feel worried or hopeless because of their serious health problem. Therefore sicker patients might need not only medical but also authentic empathic support to take the best possible care of them.

8 Is self-awareness useful to foster empathic communication with patients? Study 2

Results from Study 1 and other empirical research show that clinical empathy can be influenced by situational factors, such as patient characteristics, and that this could lead to possible disparities in health care for specific groups of patients such as sicker patients or patients using a contentious or demanding communication style. In study 2 we investigate whether physician characteristics are related to different components of the empathic process. We asked whether physician emotional self-awareness is related to behavioral empathy depending on patient communication style (research question IIIa1).

Emotional self-awareness was operationalized as attention to emotions and clarity about one's own emotions. Behavioral empathy was operationalized as physician's verbal and nonverbal behavior. Our hypothesis was that emotionally self-aware physicians would show different empathic behaviors to neutral and demanding patients in order to meet patients' different needs of physician's affective communication style. Or, in other words, more emotionally self-aware physician should vary their empathic behavior to a greater extent when talking to a demanding and a neutral patient. In order to test this assumption we asked physicians to lead medical interviews with two different standardized patients and manipulated patients' communication style as either neutral or demanding. Both patients gave equal amounts of medical information and asked an equal amount of questions. Our aim was to find out whether emotionally self-aware physicians varied their facilitating, instrumental and psychosocial verbal behavior and their nonverbal behavior according to patients different communication styles and needs as an expression of their empathy.

The demanding patient communicated in a dominant, dramatic way indented to elicit a negative affective reaction within the physician, which might hamper an empathic reaction. Given the differences in patients' communication styles we expected that more physician emotional self-awareness would lead to more variation concerning physicians' facilitating and psychosocial verbal behavior between the demanding and the neutral patient. Because patients' giving of or asking for medical information did not differ between communication styles, we did not have a specific expectation about the proportion of instrumental talk with both patients.

To our knowledge, no other study has looked at the impact of emotional self-awareness on physician's nonverbal behavior, so far. We therefore do not stipulate a specific hypothesis concerning physicians' variation of nonverbal behavior between patient communication styles.

Because in Study 1 we only found partial evidence that cognitive, affective, and behavioral empathy were positively related each other we wanted to re-test this correlation in Study 2 (this time taking patient's communication style into account). Analogously to our expectations concerning the relation between emotional self-awareness and behavioral empathy, we would expect that more cognitively and affectively empathic physicians would vary their empathic behavior (psychosocial and facilitating talk) more according to patient's different communication styles. We did not stipulate hypothesis concerning physicians' cognitive and affective empathy and nonverbal behavior.

Additionally, we analyzed the relationship between emotional self-awareness, and cognitive and affective empathy. Cognitive empathy was operationalized as perspective taking, affective empathy as empathic concern. Based on the few existing empirical results, our hypothesis was that attention to and clarity of emotions are positively correlated to cognitive and affective empathy.

8.1 Method

8.1.1 Participants

Medical class lecturers recruited medical students from the University of Basel. While 41 medical students participated in the experiment, only data of 38 (15 male) students could be used for statistical analysis due to technical problems during the experiment. Medical students' task was to put themselves in the shoes of a physician leading a medical interview with two different patients consecutively. On average, medical students were 22.68 (*SD* = 3.07) years old and had led 5.07 (*SD* = 4.66) interviews with real or simulated patients before. They had a considerable amount of experience with computers (*M* = 3.56, *SD* = 0.9).

8.1.2 Procedure

Upon arrival, medical students were instructed to lead two medical interviews with two different simulated patients (the simulation method is described in more detail under 8.1.3 Material). They signed an informed consent to give their permission to be videotaped. After that, they were led to the interview room and sat down in front of the computer, where they found a set of instruction cards in order to guide the interview with the simulated patient. The experimenter turned on the camera and then started the patient program. Consultations lasted 9.75 minutes on average (*SD* = 3.34). When the consultation was finished medical students filled in a questionnaire on how they had perceived the patient, how they had felt during the interview, and how well they had been able to identify with the simulated interview situation. Then medical students conducted the second consultation and filled in a second questionnaire with the variables from the first questionnaire plus questions concerning their emotional self-awareness, empathy, gender, age, experience with medical consultations, and computers.

One patient communicated in a demanding the other in a neutral style. Patients also presented two different diseases. Each medical student saw the demanding and the neutrally communicating patient, as well as both disease conditions. The variables communication style and disease were fully permuted.

8.1.3 Material

8.1.3.1 Virtual Reality as a methodological tool

The experiment was realized with Immersive Virtual Environment Technology (IVET). IVET is a rather new tool in experimental psychology, which enables the researcher to immerse participants into simulated situations with fully controlled characteristics. To do this, the participant puts on 3D goggles (also called head-mounted-display, HMD) on which the virtual scenario is depicted. IVET has been applied and validated in different domains of psychology (RIAS, Roter & Larson, 2002) and health care research (Blascovich et al., 2002).

In this study a special form of IVET was applied which is called ‘desktop virtual reality’. Instead of wearing a HMD a participant sat in front of a computer screen on which the virtual scenario was depicted. We used desktop VR because we were interested in nonverbal behaviors like gazing and nodding, which cannot be measured when the participant is wearing a HMD. In usual IVET the goggles are usually quite heavy and attached to a line of cables, which affects the natural movement of the head to a considerable extent. Furthermore, the experiment was conducted at the University of Basel and therefore we needed a portable solution in order to bring the VR-scenario to medical students.

IVE technology has two major advantages. First, it’s very high ecological validity, and second, its full experimental controllability (Anderson et al., 1995; Canale et al., 2012; Schmid Mast, Hall, & Roter, 2007, 2008). In other words, with the help of IVE technology it is possible to create highly realistic environments thus representing a very close approach to optimize participant involvement and behavioral realism. Additionally, factors that are uncontrollable in real life can be held constant or manipulated deliberately with IVET. For example, the person depicted in the virtual scenario, also called avatar, can be programmed to look and behave exactly the same way (e.g., appearance, nonverbal behavior) across participants. In our case the avatar was a patient. So, the manipulation added by the experimenter, here patient communication style (verbal behavior) is the only source of variation for the dependent variables measured, e.g., physician behavior.

8.1.3.2 Patient scripts

We created two different patient scripts (example depicted in Table 5, a full version is shown in the appendix). Patient script were organized according to the traditional structure of a standard medical visit: opening, history, physical examination, patient education and counseling, closing (Blascovich et al., 2002). However, because of the virtual nature of the interview, the physical examination was dropped from the consultation. With the help of an experienced physician we chose two different diseases the virtual patients reported: low grade malignant lymphoma and non-specific complaints. These diseases were chosen because they were supposed to be equally difficult to diagnose for the medical students.

Patient communication style. Additionally to the disease presented we manipulated patient communication style. One patient was communicating in a neutral, straightforward communication style and the other in a demanding, rude communication style. The physician consultant approved the final versions of the manuscript.

Table 5

Communication example for the virtual medical interview (low grade malignant lymphoma)

Instructions for medical student	Demanding patient	Neutral patient
Say welcome and introduce yourself. Press key 1.		
	Hello. That really took a while! I've been waiting for an hour now.	Hello. Thank you for this appointment. I had to wait a bit but that's how it is.
Ask the patient to take a seat. Ask for the reason of the visit. Press key 2		
	Well, listen, I've been feeling constantly tired lately and that's really very tough for me. At night I wake up, because I'm sweating, like crazy! I really can't take this any longer, you need to do something, so I can get back to	Well, I've been feeling constantly tired lately and that's very unpleasant for me. At night I wake up, because I'm sweating a lot. That's rather unusual for me so I though I should better go and see a doctor.

	normal again!	
…	…	…

Note. Colors mark differences between patient communication styles.

We tested our manipulation of communication style in a pretest with 15 raters who indicated their agreement to 4 adjectives describing patient's communication on a Likert-scale from 1 (not at all) to 5 (very much). The demanding patient was perceived as very demanding ($M = 4.83$; $SD = 0.48$) very dominant ($M = 4.40$, $SD = 0.55$), not likeable ($M = 1.33$, $SD = 0.52$), and not business-like ($M = 1.67$, $SD = 0.56$). The neutral patient in contrast was perceived as significantly less demanding ($M = 2.33$, $SD = 0.71$; $t(13) = -3.35$, $p = .001$), less dominant ($M = 1.67$, $SD = 0.50$; $t(12) = 9.49$, $p = .001$), more likeable ($M = 3.33$, $SD = 0.71$; $t(13) = -5.93$, $p = .001$) and more business-like ($M = 3.89$, $SD = 0.60$; $t(13) = -6.09$, $p = .001$).

Patient appearance. Because in this study we were only interested in the effect of the patient's communication style on the medical student, and not other patient characteristics, we only created female patient avatars, thus holding patient gender constant. Female patients have been chosen because women tend to go to the doctor's more often (Roter & Hall, 2006).

Both virtual patients differed in their clothing and had different faces (see Figure 5), which were evaluated by 15 raters beforehand so that patients did not differ concerning their attractiveness ($t(14) = 0$; $p = 1$), likeability ($t(14) = 0.49$; $p = .63$) and perceived age ($t(14) = 0.25$; $p = .81$). Raters from the patient appearance pretest did not participate in the communication style pretest.

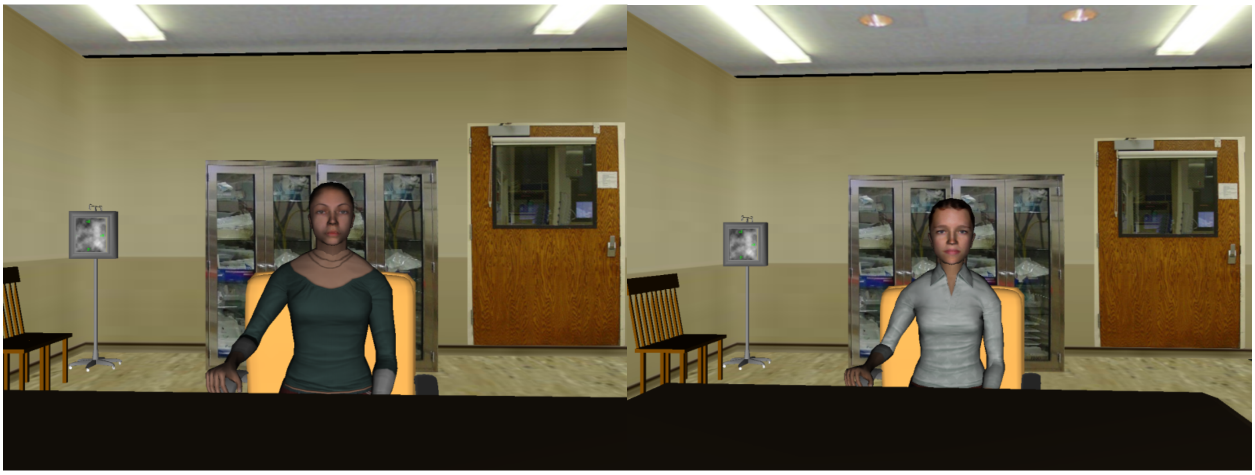

Figure 2. Virtual Patients in medical examination room. Avatar 1 and 2.

Communication between medical students and virtual patients. Patients talked with two different human voices, which were recorded before the experimental phase.

Because a computer program is not able to answer spontaneously in a conversation with a human being, the communication with the virtual patients had to be scripted. Medial students started the consultation by greeting the virtual patient. Then they pressed a computer key to elicit the virtual patient's answer. In order to create a meaningful conversation, key words written on cards prompted medical students about what they should say to or ask the patient. Medical students were asked to rephrase the key words on the instruction cards and to press a computer key each time they had finished their talking turn.

8.1.4 Measures

Emotional self-awareness. The *Trait Meta Mood Scale* (Gabbard-Alley, 1995), is a trait-like measure of self-awareness, a general tendency of people to pay attention to and be clear about their own emotions in everyday situations. We used shortened versions of two subscales of the TMMS to assess medical students' emotional awareness. The "Emotional Clarity"-subscale (Cronbach's alpha = .67, *M* = 3.97; *SD* = 0.60) contained the following items: "I usually know my feelings about a matter"; "I can't make sense out of my feelings" (reversed scored); "I am usually confused about how I feel" (reversed scored). The "Attention-to-emotions"-subscale consisted of the two items "I often think about my emotions" and "I hardly pay attention to my feelings" (Cronbach's alpha = .67; *M* = 3.76; *SD* = 0.74). Students indicated their agreement with the items on the self-awareness measure on a Likert scale from 1 (not at all) to 5 (very much).

Verbal behavior. To indicate whether medical students varied their behavior when talking to the demanding and the businesslike patient, we calculated a score for verbal flexibility. To do this, we first analyzed the videos with the Roter Interaction Coding System, RIAS (Salovey et al., 1995). Because the dialogue between a medical student and virtual patient in this experiment was relatively controlled we only chose certain RIAS categories that were relevant in the specific medical interactions of our study. For instance, questions were excluded from coding, because medical students were not allowed to ask the virtual patient spontaneous questions. Intercoder reliability was calculated as Pearson's *r* across 10 videos between two coders for each RIAS category occurring more than 2% of all utterances. The latter is common practice for RIAS coding because low occurrence leads to low variance and therefore non interpretable r values (Roter & Larson, 2002). Nevertheless, low occurring categories can be meaningfully and consistently coded (Hall et al., 1994). In our study only one category had a low intercoder reliability (paraphrases: *r* =.33), all other categories had Pearson *r*'s >.71.

For further analysis, a medical student's score in a specific RIAS category was divided by the total amount of utterances by that same student. Then we clustered RIAS categories according to suggestions from Eide and colleagues (Hall et al., 1994) and Hall and colleages (Eide et al., 2003) into three groups: the emotional cluster (empathy, concern, reassures, paraphrases, counseling on psychosocial and lifestyle topics), the facilitating cluster (agreement, partnership, approval, personal remarks), and the instrumental cluster (gives orientation, gives information medical/therapy, counseling on medical and therapy topics). The goal was to create an indicator how much a medical student adapted his or her behavior when talking to the neutral and the demanding patient. To do this, for each medical student and each RIAS cluster separately, we correlated the single RIAS categories, while talking with the neutral patient, with the RIAS categories when talking to a demanding patient. These so-called profile correlations served as indicators of behavioral flexibility, the lower the correlation coefficient, the more behavioral flexibility. Finally, profile correlations were multiplied by (-1), so that a high, positive profile correlation signaled that a medical student had adapted his or her verbal behavior when talking to the neutral and the demanding patient. For further statistical analysis of our hypotheses profile correlations were transformed into Fisher *z* for normalization.

Nonverbal behavior. Five nonverbal behaviors served to measure change in medical students' nonverbal behavior when talking to the two different patients. The choice of nonverbal behaviors was based on their relevance for a patient-centered communication style in the medical encounter (1994), their occurrence, and their relevance in the experimental setting. Ten videos were evaluated by two trained coders for speaking time physician, general gazing at the patient, gazing while talking, gazing while listening, smiling, nodding. We used several codes for physicians' gaze because the virtual consultation is a specific situation. In a dyad with two real people it is easy to judge whether one interaction partner is looking directly at the other. In the virtual interview, where medical students were looking at computer screens, it was difficult to determine exactly whether medical students were looking at the patient or something else in the virtual consultation room. In order to obtain more differentiated information on medical students' gaze we added two other measures of gaze: looking while listening and looking while speaking. Intercoder reliabilities measured as Pearson *r*'s per nonverbal behavior were between .71 and .99. Again, in order to measure how much medical students adapted their behavior between the neutral and the demanding patient, we used profile correlations. More specifically, for each student we correlated the selected nonverbal behaviors while talking to the neutral patient with the same behaviors when talking to the demanding patient. Profile correlations were multiplied by (-1) so that a high, positive correlation indicated more nonverbal variation between the different patient communication styles. For further statistical analysis of our hypotheses profile correlations were transformed into Fisher z for normalization.

Empathy. Empathy was measured as a self-evaluation by medical students using the empathy subscale of the Turknett Leadership Group Emotional Intelligence Quiz, which is based on two subscales of the Davis empathy scale (Hall, Harrigan, & Rosenthal, 1995; Schmid Mast, Hall, Klöckner, & Choi, 2008). The two subscales are perspective taking (measuring cognitive empathy) and empathic concern (measuring affective empathy). Medical students thought of themselves as average perspective takers ($M = 3.44$; $SD = 0.62$; Cronbach's $\alpha = .74$) and equally tended to feel a bit more than average empathic concern ($M = 3.75$; $SD = 0.48$; Cronbach's $\alpha = .69$). A sample item for perspective taking is "I believe that there are two sides to every question and try to look at them both" and for empathic concern "I often have tender, concerned feelings for people less fortunate than me". Students indicated their agreement with the items on the empathy measure on a Likert scale from 1 (not at all) to 5 (totally agree).

Emotions. A shortened form of the Profile of Mood States (POMS) questionnaire (Davis, 1980) was used to analyze the emotional effect of the patients' communication style on medical students. The four affective dimensions anger, depression, fatigue and vigor were measured with 5 adjectives each (e.g., angry, discouraged, exhausted, cheerful). Cronbach's alphas were between .72 and .83, calculated for each affective dimension for the neutral and the demanding patient, separately. Medical students average ratings for depression and fatigue when talking to the neutral patient were $M = 2.82$, $SD = 0.82$; $M = 2.28$, $SD = 0.9$; and when talking to the demanding patient were $M = 2.66$, $SD = 0.74$; $M = 2.24$, $SD = 0.85$. Average values for anger and vigor were $M = 1.52$, $SD = 0.65$; $M = 2.43$, $SD = 0.67$ (neutral patient) and $M = 2.11$, $SD = 0.84$; $M = 2.31$, $SD = 0.68$ (demanding patient). Also, medical students evaluated their *stress* felt during the neutral and the demanding interview (three items, e.g., "I felt stressed", Cronbach's alpha .73 and .83). Average ratings were $M = 3.28$, $SD = 0.97$ for the demanding and $M = 3.08$, $SD = 0.78$ for the neutral patient. Medical students rated their emotions on a Likert-scale from 1 (not at all) to 5 (very much).

Perception of simulated patients. On a Likert-scale from 0 (not at all) to 9 (very much) medical students indicated how dominant, demanding, businesslike, and likeable they had perceived the patient during the virtual interview. On average the demanding patient was perceived as more demanding ($M = 6.40$, $SD = 1.28$) and dominant ($M = 5.46$, $SD = 1.60$), and less businesslike ($M = 2.91$, $SD = 1.56$) and likeable ($M =3.14$, $SD = 1.50$) than the neutral patient ($M = 3.61$, $SD = 1.31$; $M = 2.05$, $SD = 1.50$; $M = 5.82$, $SD = 1.60$; $M = 6.80$, $SD = 1.13$).

Personal data. At the end of the second questionnaire medical students were asked about personal data such as age, gender, experience with computer use, and experience with medical consultations. Also, student's rated how immersed they had felt during each interview.

8.2 Results

8.2.1. Manipulation check and effectiveness of the simulation

We first wanted to check whether our manipulation of patients' communication style had been successful. Indeed, medical students rated the demanding patient as more demanding ($F(1,37) = 81.70$, $p = .001$) and more dominant ($F(1,37) = 68.20$, $p = .001$). The neutral patient on the contrary was perceived as more businesslike ($F(1,37) = 34.93$, $p = .001$) and more likeable ($F(1,37) = 128.61$, $p = .001$).

As a consequence to our manipulation of patients' communication style we had intended to elicit different emotional reactions in medical students when talking to the demanding and the neutral patient. To test whether medical students felt differently when talking to the demanding and the neutral patient we calculated for each emotion a repeated measure ANOVA with communication style as the independent variable on two levels (demanding and neutral as the within subjects factor) and the specific emotion as the dependent variable. Medical student gender, type of disease presented in the neutral patient condition, experience with medical interviews, and computer experience served as covariates. Students felt angrier and less vigorous with the demanding patient than with the neutral patient (respectively $F(1,12) = 5.19$, $p = .03$; $F(1,37) = 3.96$, $p = .05$). Also, medical students were more stressed in the interaction with the demanding patient than with the neutral patient ($F(1,37) = 9.69$, $p = .004$). Thus, the manipulation of patient's communication style was successful. Medical students did not feel more or less immerged with one or the other patient ($M_{neu} = 2.84$, $SD_{neu} = 0.73$; $M_{dem} = 2.81$, $SD_{dem} = 0.71$; $t(37) = 0.31$, $p =.76$).

8.2.2 Emotional self-awareness, cognitive, affective, and behavioral empathy

We wanted to analyze whether self-awareness increased medical students' verbal flexibility for facilitating and psychosocial talk between the demanding and the neutral patient and lead to an equal amount of instrumental talk. Also, we wanted to find out whether students adapted their nonverbal behavior according to patients' communication style.

Analogously to our hypothesis concerning self-awareness, we expected the same relation between cognitive, affective, and behavioral empathy. To test our assumptions, we correlated medical students' ratings of emotional attention and clarity, perspective taking and empathic concern with the verbal and nonverbal behavior profile correlations while controlling for medical student gender, disease presented in the neutral patient condition, experience with computer use, and experience with medical interviews (Table 6).

Table 6

Correlations between medical students' emotional self-awareness, empathy, and verbal and nonverbal flexibility between patient communication styles

	Facilitating flexibility	**Psychosocial flexibility**	**Instrumental flexibility**	**Nonverbal flexibility**
Emotional self-awareness				
Emotional Attention	.10	-.04	.15	.41*
Emotional Clarity	-.43*	-.17	.20	.14
Empathy				
Cognitive empathy	.50**	-.11	.23	.07
Affective empathy	-.18	-.26	.11	.02

Note. Depicted are partial correlations controlling for medical student gender, disease presented with the neutral patient, computer experience, and experience with medical interviews.

**p* < .05; ***p* < .01

The positive correlation between emotional attention and nonverbal flexibility indicates that when medical students where more inclined to pay attention to their emotions, they showed more variation in their nonverbal behavior between the two patients. Furthermore, the clearer medical students' were about their emotions, the less they varied their facilitating talk between the neutral and the demanding patient. In contrast, students who were better at perspective taking showed more variation concerning their facilitating talk between patients.

We also tested the correlation between cognitive and affective empathy. Contrary to our results in Study 1 there was no significant correlation ($r = .11$; $p = .50$).

To investigate the association between medical student emotional self-awareness and empathy we calculated correlations between attention to emotion, emotional clarity, perspective taking and empathic concern. We did so for female and male students separately, because empathy has been shown to vary between male and female medical students (Mc Nair, Lorr, & Droppleman, 1971). As shown in Table 7 there was no significant correlation between these variables. However, for female students there was a tendency toward a positive relation between clarity of emotions and empathic concern.

Table 7

Correlations between emotional self-awareness and empathy for male and female medical students

	Affective empathy		Cognitive empathy	
	Male	Female	Male	Female
Attention to emotions	.29	-.14	.22	.25
Emotional clarity	-.05	.38†	.10	-.16

Note. Depicted are Pearson *r*'s.

† $p < .10$

8.3 Discussion

In this study, medical students' empathic behavior was investigated when faced with two different emotionally challenging medical consultations (a demanding and a neutral patient). As intended through our manipulation, students were more stressed and had more negative emotions with the demanding patient. We expected that more emotional self-awareness (measured as attention to and clarity of emotions) and more intrapersonal empathy (measured as perspective taking and empathic concern) would lead to more variation in medical students' verbal and nonverbal behavior according to patients' communication style. More specifically, we predicted that more emotionally self-aware and more cognitively and affectively empathic medical students would be more flexible in their facilitating and psychosocial behavior between patients. We did not make any assumption about students' instrumental talk or nonverbal behavior. Moreover, we tested the theoretical assumption that self-awareness relates positively to cognitive and affective empathy.

Against our expectations, medical students who paid more attention to their feelings showed bigger changes in their nonverbal behavior when talking to a demanding and a neutral patient. Nonverbal behavior conveys emotional messages and is thought to be on a more unconscious level than verbal behavior (Hall et al., 2009). Knowing that medical students felt angrier and more stressed with the demanding patient it is likely that medical students involuntarily communicated these emotions through their nonverbal behavior ("nonverbal leakage"), even though they might have tried not to show these negative emotions to the demanding patient (Philippot, Feldman, & Coats, 2003). But why did their nonverbal behavior differ more when medical students' focus of attention was on their emotions? Research shows that self-recall of nonverbal behavior was impaired when the focus of attention was directed to the self, for example in situations raising self-consciousness (Ekman & Friesen, 1974). The authors discussed increased cognitive load as a source of this impaired accuracy performance. Likewise, medical students who were very attentive to their emotions could have been less able to control their nonverbal behavior with the demanding patient. This explanation is supported by the fact that attention to one's own emotions has been shown to be positively related to self-consciousness (Hall, Murphy, & Schmid Mast, 2006, 2007).

We predicted that more emotional clarity (i.e., the ability to correctly name one's own emotions) would lead to more flexibility in medical student's facilitating talk. Instead we found that medical students who were clearer about their own emotions were significantly more stable concerning their facilitating behavior between the neutral and the demanding patient. Salovey and colleagues (Salovey et al., 1995) found that emotional clarity was positively related to emotional repair. Maybe when being clear about their own emotions, medical students were trying to cope with these emotions and this put a cognitive load on them so that they were not able to perceive the demanding patient's needs and adapt their facilitating behavior accordingly. However, because we used standardized patients, we do not know how medical students facilitating behavior would have been perceived by the patient. So far, research shows that other patient characteristics like race for example, influence patient participation in the consultation so that physicians show a less participatory consultation style with black patients (1995). This was not the case in our study, because here, more emotionally self-aware students kept their facilitating talk constant. Maybe through being aware of their negative feelings toward the demanding patient medical students were able to share an equal proportion of facilitating talk with the demanding and the neutral patient as an effort to give equal care to both patients. Whether sharing the same amount of facilitating talk would be enough to yield equal participation for white and black patient, or neutral and demanding patient, as in our study cannot be answered with the data presented.

Why did medical students' attention to emotions and clarity of emotions not result in more psychosocial talk between different patient communication styles? Research has shown that physicians talk more about psychosocial issues with white and female patients as compared to black or male patients, but psychosocial talk is one of the least frequent types of talk used in the medical encounter altogether (Roter et al., 1997). Our patients were white and female, so it could be that medical students used a high proportion of psychosocial talk with both patients already and that patient's communication style just did not make a difference. Race and gender might be stronger predictors of physician behavior than patient's communication style (Kaplan, Gandek, Greenfield, Rogers, & Ware, 1995).

None of the empathy or emotional-self-awareness measures influenced students' proportion of instrumental talk with the different patients. This is in line with our hypothesis because patients' communication styles were designed in a way to keep the amount of medical information given and medical questions asked between the two patients.

Higher cognitive empathy scores were related to more flexible facilitating behavior when talking to a neutral and a demanding patient. This means that medical students who were better at taking patients' perspective were better able to adapt their facilitating behavior according to patients' communication style. Given the fact that facilitating talk by the physician improves patients' active participation in the consultation (Street, 2002) and given that more active patients have better consultation outcomes (Street et al., 2007), this could be a positive finding. According to our manipulation the demanding patient expressed a higher need for facilitating talk from the physician. It is very likely that medical students with a better perspective taking skill recognized this need in the demanding patient and adapted their behavior accordingly. However, perspective taking did not have an influence on medical student's psychosocial talk, as we hypothesized. A closer look at the measures of cognitive empathy (perspective taking) and behavioral empathy (facilitating talk and psychosocial talk) might yield an explanation for this result. Perspective taking is described as an exclusively cognitive skill, not taking the other's feelings into account. However, the psychosocial talk cluster consists of dimensions of talk, which explicitly refer to an expression of emotion to the patient or the active and engaged exploration of patient's feelings and concerns. It could therefore be good perspective takers might correctly recognized a patient's situation as potentially emotionally challenging, but they somehow lack the potential or even readiness to invest themselves emotionally with the patient. Research by Davis (Epstein et al., 2005) appears to strengthen this argument: the perspective taking scale was not related to emotionality, measured as an unselfish sensitivity to other's emotions. It seems as if physician's cognitive skill to take other's perspective is not helpful to actively elicit and integrate patient's feelings and concerns.

Affective empathy was not related to any behavioral measure. It could be that similar to our findings in Study 1, affective empathy was hampered by patient's demanding communication style and therefore medical students were unable to adapt their behavior according to the patients' needs. It might also be that because of the artificial situation in which the interview took place, medical students' reacted less affectively empathic to the virtual patient. In their study on medical student's ability to be empathic with a virtual patient, Deladisma and colleagues (1983) found that on average medical students showed lower rates of empathy with a virtual patient as when confronted with a real person actor as a standardized patient. Hence, medical students might have experienced not enough affective empathy as to affect their empathic behavior toward the virtual patient.

Emotional self-awareness was not related to the intrapersonal component of empathy. This contradicts results from Hall and colleagues (2007) who found a positive correlation between medical student clarity of emotions (i.e., the skill to correctly name one's own emotions) and cognitive empathy (i.e., nonverbal sensitivity) for male but not for female students. However, in our study, there was a tendency for female students that their clarity of emotions was positively related to affective empathy. The fact that clarity of emotions was related to intrapersonal empathy differently for male and female medical students is in line with Hall and colleagues findings. Maybe the small sample size in our study (especially when looking at male and female students separately) prevented the effect from being significant.

8.3.1 Limitations

The total N in this study is very small, so that conclusions or generalizations about our results should be made very cautiously. However, we did find several significant relations between self-awareness and empathic behavior, which might serve as starting point for future research on this topic.

We chose a virtual scenario to test our research questions because of the high ecological validity of this method. Despite the fact that medical students indicated that they experienced the virtual medical consultations as somewhat real, it is likely that emotional communication skills like self-awareness or empathy are more pronounced in standardized encounters with real patient actors and thus might show stronger effects. Future research should take this methodological issue into account when planning the study design.

Finally, we chose a correlational approach to analyze the relation between physician self-awareness, intrapersonal empathy and empathic behavior. We did so, because we were interested in a range of physician behaviors rather than in a comparison of means for specific behaviors. There is no list of specific behaviors, which are considered as exclusively empathic, because empathy is a communication skill consisting of many facets of psychological processes and communicative behaviors. Therefore we consider the correlational approach to be the best fit.

8.3.2 Practical implications

The emotional aspect of self-awareness (correctly naming one's own emotions and paying attention to one's own emotions) might not be as beneficial for physicians' empathic behavior as theoretically assumed. Maybe just being aware of one's own emotions is not enough. Good emotional management might be necessary in order to cope with emotionally challenging situations such as difficult patients. The usefulness of emotion management or coping strategies could be tested in future studies and used in physician training. Maybe also other aspects of mindfulness might be more useful to develop genuine empathic feelings, for instance, non-judging of one's own thoughts and feelings and detachment as the perception of thoughts and feelings as states that pass and change over time. Given the relation found between self-awareness and empathy more studies should analyze this physician communication skill as an antecedent of empathy in order to clarify its positive or negative effect.

9 Summary and Integration

The aim of this thesis was to shed light on the role of physician empathy and one of its antecedents, self-awareness, in the medical encounter. To do this, I conducted two studies. In one study physicians were videotaped with their patients and their empathic communication style was measured along with patient outcomes and patient characteristics. I wanted to know whether cognitive empathy (i.e., nonverbal sensitivity and decoding skills), affective empathy (shared emotions and encoding skills), and behavioral empathy (verbal empathy, nonverbal empathy) affect patient outcomes like satisfaction and trust. Furthermore, I analyzed how patient health was related to cognitive, affective, and behavioral empathy. In Study 2, medical students were asked to lead a consultation with two standardized patients consecutively, each adopting a different communication style. The aim was to test whether medical students' self-awareness (clarity of emotions and attention to emotions), as well as their cognitive (perspective taking) and affective empathy (empathic concern), was related to their behavioral empathy depending on patients' communication style. In the following, I list the main results for research question I (How are different components of empathy related to patient outcomes?) and III (How are antecedents related to different components of empathy?).

- When physicians used more verbal empathy (behavioral empathy) patients trusted their physicians less and tended to be less satisfied with their physicians
- When seeing a sicker patient physicians were
    - Less able to recognize their patients' feelings (cognitive empathy)
    - Less able to feel with patients and express their own emotional experience (affective empathy)
    - Physicians used more verbal empathy (behavioral empathy)
- When physicians were clearer about their own emotions they varied their facilitating talk (behavioral empathy) less depending on patients' communication style
- When physicians paid more attention to their own emotions they varied their nonverbal empathic behavior (behavioral empathy) more depending on patients' communication style
- There was a tendency that female physicians were more empathically concerned (affective empathy) when they paid more attention to their own emotions
- Nonverbal sensitivity and perspective taking were not related to any of the patient outcomes or antecedents of empathy.

In both studies I tested theoretical assumptions about relations between empathic components (research question II: How are different components of empathy interrelated?). Figure 3 depicts the relations found in both studies. Cognitive empathy was positively related to affective empathy (more decoding skills associated with more shared emotions and encoding skills) and behavioral empathy (better perspective taking associated with more variation in facilitating talk).

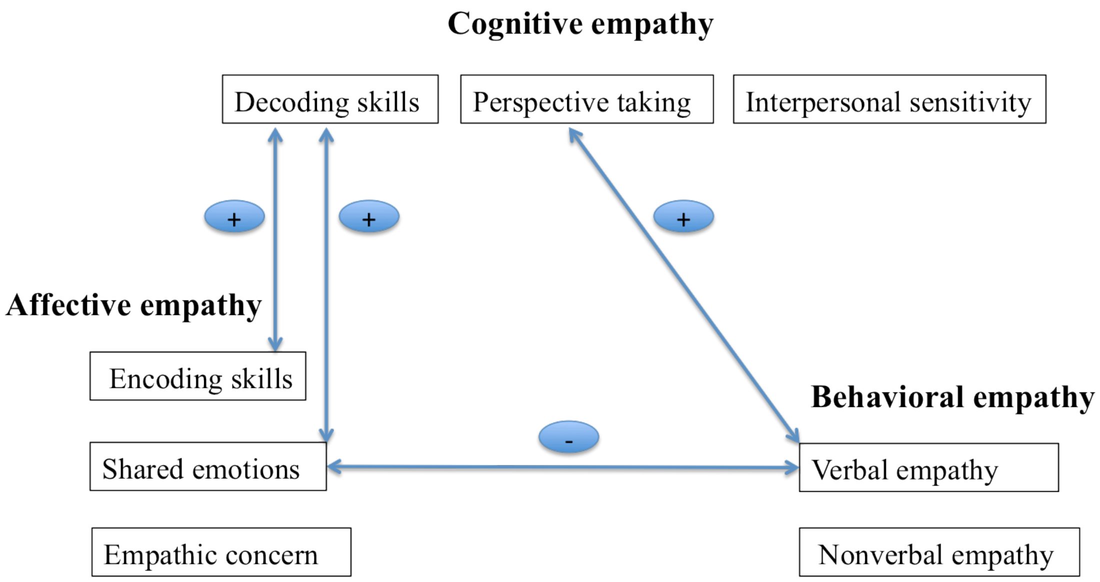
Cognitive empathy
Decoding skills
Perspective taking
Interpersonal sensitivity
+
+
+
Affective empathy
Encoding skills
Shared emotions
Empathic concern
-
Behavioral empathy
Verbal empathy
Nonverbal empathy

Figure 3. Relations between empathic components as found in Study 1 and 2. Ovals with "+" indicate positive correlations, ovals with "-" negative correlations.

Affective empathy (shared emotions) was negatively related to verbal empathy (number of empathic statements). However, cognitive, affective, and behavioral empathy were not related at all when measured as interpersonal sensitivity, empathic concern, and nonverbal empathy.

From these results I would like to draw the following conclusions and discuss these in the following:

1) The description of the empathic process as the interplay of different empathic components is insufficient. New conceptual and methodological approaches are needed to explain contradicting results on empathy and patient outcomes or the interrelation of empathic components.

2) Antecedents of empathy (physician and patient characteristics) importantly determine the empathic process. Physicians need to be trained in order to take into account and possibly counteract antecedents, which impede empathy.

3) Affective empathy might play a less important or even harmful role in the empathic process. Other empathic components might be more relevant.

9.1 The empathic process – conceptual and methodological issues

Overall research shows a very mixed pattern regarding the association between different empathic components (intrapersonal, interpersonal, patient outcomes). Researchers suggested various reasons for this confusion, such as the different components of empathy, which are being measured in different studies, different perspectives from which empathy is measured (the physician, the patient, or independent observers), and different measures used to assess a specific type of empathy.

9.1.1 Introducing two levels of empathy – surface and deep

Results from my studies on the relation between intrapersonal or interpersonal empathy and patient outcomes are weak or counterintuitive to existing theory (2009). For instance, a counterintuitive result from Study 1 was that intrapersonal empathy (shared feelings) was negatively related to interpersonal (verbal) empathy. In Study 2 affective empathy (empathic concern) was not related to either cognitive empathy (perspective taking) or interpersonal empathy (verbal and nonverbal behavior). The relation between intrapersonal and interpersonal empathy has rarely been measured and, if so, mostly results in surprisingly little associations between the two. For instance, medical students' cognitive empathy, measured as understanding the patient's thoughts and feelings was not related to their empathic behavior measured as a pattern of verbal behaviors (Holm, 1985; Irving & Dickson, 2004; Mercer & Reynolds, 2002; Rogers, 1975). Another study measured medical students' cognitive, affective, and behavioral empathy before and after a training. Medical students showed changes in their empathic behavior measured as specific interviewing skills after the training (Tamburrino, Lynch, Nagel, & Mangen, 1993). However, there were no parallel changes in intrapersonal empathy.

These empirical results show that behavioral empathy is not necessarily based on intrapersonal empathic processes. In fact, the interdependence of empathic components as described in Larson and Yao's empathic process model (2005) cannot be verified at all times. Another approach of interpreting such contradicting results is Larson and Yao's suggestion to frame the empathic process according to Hochschild's concept of emotional labor (Evans, Stanley, & Burrows, 1993). According to Hochschild emotional labor occurs when explicit display rules request the expression of specific emotions toward specific others (e.g., customers or clients). This is the case in service and direct interactive professions, like waiters or flight attendants, who need to be friendly to customers for commercial purposes even if the customer’s behavior is inadequate or unfriendly. Hochschild further explains that there are two acting methods in order to display the required emotions. The first method is called deep acting and refers to the display of required emotions while at the same time the person displaying these emotions alters his or her inner experience to a deep feeling of the emotions displayed. The person then shows the required emotions because of an inner conviction and affective experience of this emotion. A second acting method is called surface acting. When surface acting a person displays the required positive emotions while trying to hide or suppress his or her true negative feelings toward an unfriendly client, for instance.

Larson and Yao (1983) suggested that clinical empathy can be seen as emotional labor because it comprises internal as well as external emotion management in order to coordinate one’s own emotional experience and display an adequate empathic emotion to the patient. Likewise to other jobs requiring emotional labor, physicians can adopt deep or surface acting in order to convey empathy to the patient. More specifically, the physician can try to understand the patient’s perspective and feel with the patient (cognitive and affective empathy), which is the basis for deep acting, and will then give the physician the possibility of showing behavioral empathy to the patient. When surface acting the physician simulates empathic behavior by faking verbal and nonverbal expression, but without underlying cognitive or affective empathic processes.

What might be the consequence if a physician shows empathy on a deep or a surface level? Larson and Yao (2005) postulate that deep and surface acting might have beneficial effects for patients. Based on empirical research and my own results I counter argue that surface acting might have negative effects on patient outcomes like trust or satisfaction. Empathic behavior when displayed without underlying intrapersonal empathic processes, thus on a surface level, might not fit patients’ needs and therefore be perceived negatively by patients.

Empirical studies linking intrapersonal or interpersonal empathy to patient trust are still relatively few and, to my knowledge, no other study has found a negative effect of physicians’ empathic verbal behavior on patient trust. However, there are some findings on negative effects of verbal empathic behavior on patient satisfaction. Physician verbal empathy measured as emotional responsiveness was negatively related to satisfaction (2005). Also, when physicians verbally expressed more understanding or empathy patients were less satisfied (Ishikawa, Takayama, Yamazaki, Seki, & Katsumata, 2002). That could mean that physicians in these studies were surface acting without being able to take their patients' perspective or without feeling with their patients. However, none of these studies actually measured intrapersonal empathy and therefore empirical evidence for empathy displayed on a surface level can only be speculative. However, my results show that when physicians showed more verbal empathy patients were less trustful and tended to be less satisfied. At the same time physicians' cognitive or affective empathy were not in line with their display of behavioral empathy (intrapersonal empathy was not related to patient outcomes). This could be an indicator that physicians were surface acting only, which affected patients negatively.

Likewise, surface acting might have negative consequences for physicians, too. In fact, health care professionals, when compared to other professional groups (e.g., sales, banking, cooks), have a highly social work environment with a lot of task-related interactions requiring emotional labor, which affect job satisfaction (Ong, Visser, Lammes, & de Haes, 2000). Furthermore, surface acting has been found to lead to increased emotional exhaustion and decreased well-being in nurses and physicians (Tschan, Semmer, & Inversin, 2004).

Maybe empathy on a deep level yields more positive patient and physician outcomes. Morris and Feldman (Zammuner & Galli, 2005) argue that deep acting requires less emotional labor (engendering less stress and emotional exhaustion) because it is based on genuine feelings which do not contradict the external display rules of emotions. For instance, a physician who feels sympathy for a specific patient might have to put less effort in displaying empathic behavior because of his or her genuine feelings of cognitive and emotional understanding toward the patient. In contrast, a physician who dislikes a patient will feel a strong dissonance between his or her feelings of dislike and the need to show empathic behavior with the patient. The cost of showing empathic behavior should then be much higher, because the physician has to suppress the negative feelings while faking empathic behavior.

At the same time, patients might perceive physicians' empathy as more authentic when it is shown on a deep level. Indeed, deep acting as compared to surface acting has been shown to yield better affective delivery ratings from others (i.e., others perceived the "deep actor" as more authentic and genuine). Furthermore, qualitative research shows that patients especially value their physicians for being authentic (i.e., being themselves, not making feelings up) (1996).

9.1.2 Methodological short-comings in the measurement of empathy

My results might also help to point out methodological issues. Several researchers have published their critical deliberations about the adequacy of common methods used to measure empathy (Salmon, Mendick, & Young, 2011). One important aspect of criticism is that empathy as a communicative process with two interaction partners is mostly measured from one perspective only: that of the patient, that of the physician, or that of an observer. Salmon and colleagues (Pedersen, 2009; Salmon et al., 2011; Stepien & Baernstein, 2006) argue that often only one of these perspectives is measured and used to engender valid results for the concept of empathy as a whole. However, this seems to be an inadequate choice of methods. When different perspectives are compared the incongruity in the perception of physician, patient, and observers become evident (2011). On the one hand, objective observations identified a lack of personal talk (as a measure of physicians' emotional connection and a base for patient perceived support) in medical encounters. On the other hand, patients indicated to feel emotionally connected and supported by their doctors. Also, Tamburrino's and colleagues (1993) study is an example of (intended) methodological inconsistency: while physicians self-evaluated their understanding of patients' perspective, physicians' empathic behavior was coded by trained raters. As a consequence, physicians thought having improved their understanding of patients, independent observers did not detect a change in physicians' behavior. Likewise, other studies report differences in patients' and physicians' perspective on physicians' communication (Young, Ward, Forsey, Gravenhorst, & Salmon, 2011).

In Study 1 I measured empathy using an objective perspective by choosing either standardized tests, observations, or by using patients' evaluations as criterion for physician's self-evaluations or vice versa. Patient outcomes, in contrast were measured using self-evaluations. This could be another explanation for the lack of associations found between empathic components and patient outcomes. For instance, when observers coded a high amount of verbal empathy it is unclear whether patients also perceived their doctor as being more empathic. Moreover, including physicians' perspective might have yielded results on the questions why more verbally empathic physicians were not at the same time better at understanding their patients' thoughts and feelings, and feeling with patients.

Empirical research indicates that measuring one perspective or one component of empathy only is not sufficient when looking at the relation between clinical empathy and patient outcomes. Such a unitary methodological approach fails to correctly represent the multidimensional and multi-level structure of clinical empathy. Hence, including relevant empathic components in study designs in order to detect empathic processes on two levels (surface and deep) is necessary to gain valid and helpful information on how empathy affects patient and physician outcomes. This information is all the more important for instance when establishing physician trainings in order to develop and improve health care for both patients and health care professionals. Physicians' reports give information on when the physician feels empathy or thinks he or she behaved empathically toward the patient. Only this awareness of empathy or lack thereof in the physician can be used in medical communication education to train empathy in physicians. Yet, when the physician thinks he or she felt or behaved empathically, that doesn't mean, that the patient has the same perception. It is thus vital, when looking at patient outcomes to include patients' perspective in order to find out which features of physician empathy lead to improved patient outcomes. By linking physicians' and patients' perspective we will then be able to identify empathic factors, which can be trained and truly lead to better patient outcomes.

There is a need for new methodologies in measuring empathic communication between physicians and patients. Such new methodologies should address the question how to integrate measures of the patient's, the physician's and an observer's perspective in order to acknowledge and explain differences in multiple perspectives on the empathic process.

9.2 Antecedents of empathy determine the empathic process – joint effects of patient and physician characteristics

In both of my studies there was convincing evidence for associations between patient and physician characteristics to intra- and interpersonal empathic processes. Figure 4 depicts relations between patient health and intra- and interpersonal empathic components, as well as between physician emotional self-awareness and empathic behavior depending on patient communication style. These findings are consistent with existing literature showing important effects of antecedents of empathy on the medical communication process (Brown et al., 1999; Griffin et al., 2004). Also, the empirical findings confirm theoretical assumptions made by Larson and Yao (2005) about the relationship between antecedents of empathy and intra- and interpersonal processes. However, Larson and Yao's predictions are on a very global level, and research shows that the relation between patient and physician characteristics and empathic communication might be further differentiated.

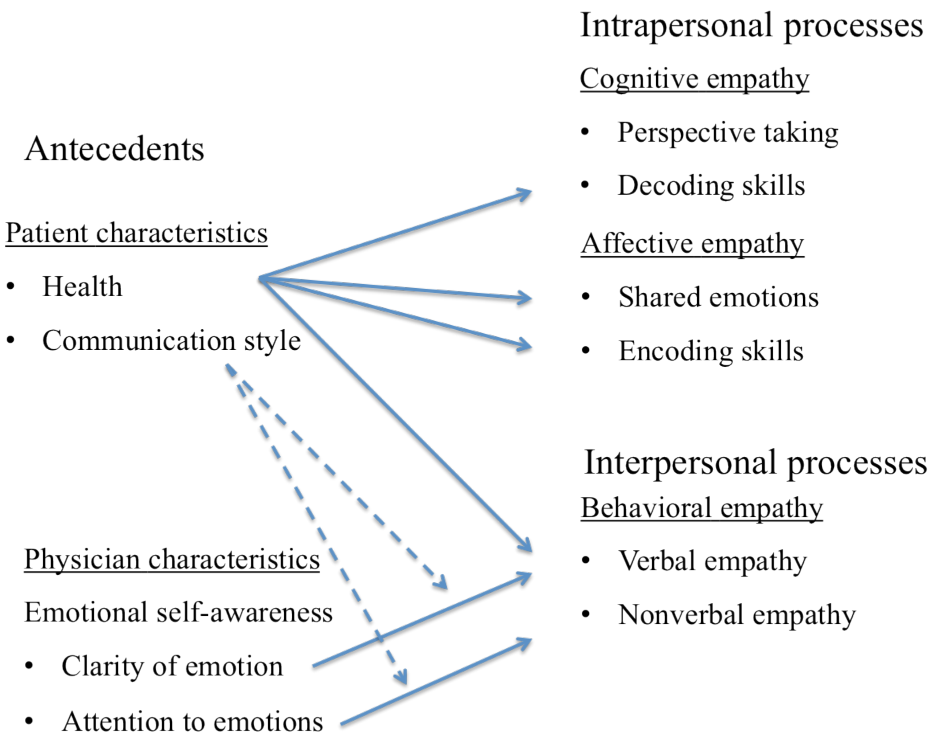
Intrapersonal processes
Cognitive empathy
Perspective taking
Decoding skills
Affective empathy
Shared emotions
Encoding skills
Antecedents
Patient characteristics
Health
Communication style
Interpersonal processes
Behavioral empathy
Verbal empathy
Nonverbal empathy
Physician characteristics
Emotional self-awareness
Clarity of emotion
Attention to emotions

Figure 4. Relationships found between antecedents and intra- and interpersonal processes in Study 1 and 2. Full arrows indicate direct relationships. Dashed arrows indicate the influence of one variable on the relationship between two other variables.

Physician characteristics that have been linked to clinical empathy are gender and specialty among others (Hall et al., 1994; Hall et al., 1996; Krupat, Yeager, et al., 2000; Street et al., 2007). As to patient characteristics, race, health literacy, age, and health status influence physicians' empathic behavior (Chen, Lew, Hershman, & Orlander, 2007; Hall et al., 2009).

While these studies examine the influence of many separate patient or physician characteristics, few studies have looked at patient and physician characteristics at the same time. Such research indicates that patient and physician characteristics might not be independent factors influencing the empathic process, but rather affect physicians' empathic communication in specific interaction processes. When looking at socio-demographic variables, patient and physician gender have been shown to have a joint effect on physicians empathic communication behavior (Cooper et al., 2003; Hall et al., 1998; Schulz & Nakamoto, 2013; Siminoff et al., 2006). In the female physician-male patient-dyad, for instance, physicians display the most empathic nonverbal behavior but express less verbal empathy, as compared to all other dyads. Moreover, same gender dyads, as compared to mixed gender dyads, are generally characterized by physicians' empathic tone of voice. At the same time, when physicians and patients are about the same age (up to 10 years difference) physicians communicate in a less empathic more contentious way as compared to other age-dyads (Sandhu, Adams, Singleton, Clark-Carter, & Kidd, 2009).

Moreover, physician and patient communication styles seem to have a combined effect on physicians' empathy. Street and colleagues (2007) showed that physicians' communication style was best predicted by patient's communication style. When patients participated more actively in the consultation, showed more positive affect, and were less contentious, physicians showed more empathy by reciprocating these communication behaviors. However, at the same time physicians' perception of patients' communication also depended on patient characteristics (i.e., black patients' were perceived as less effective communicators and as less satisfied with care). In line with this research, my results showed that physician communication skills (emotional self-awareness) were related to interpersonal empathy (verbal and nonverbal behavior) depending on patient communication style.

Considering physician personality factors and patient characteristics, another study found that, when physicians were generally more interpersonally sensitive and patients had a worse general health status, physicians were more cognitively empathic, measured as recognizing depression and psychological issues in their patients (Street et al., 2007). This is in contrast to my findings that physicians were less cognitively and affectively empathic with sicker patients. However, in this study, I only included physician socio-demographic characteristics (e.g., gender, age, work experience) as control variables and did not analyze personality or communication variables.

From these findings I might conclude that both patient and physician characteristics affect different components of the empathic process directly and, even more importantly, indirectly through joint effects. Such joint effects of patient and physician characteristics on physician empathy create highly specific consequences for the communication between patient and physician and thus also for the effectiveness of the medical encounter (Robbins et al., 1994). Because each medical consultation occurs in a specific context, it is vital to put more emphasis in research on the joint effects and interactions of patient and physician characteristics in order to foster and improve physicians' empathic communication.

9.3 The role of affective empathy - an overemphasis?

Most models or definitions of empathy including more than one component either implicitly or explicitly assume that empathic components are interrelated (Schmid Mast, Klöckner, & Hall, 2009; Stewart, 1995; Street et al., 2007). Commonly, these researchers assume that cognitive empathy is a prerequisite for affective empathy. It seems logical that in order to share patient's feelings or be empathically concerned a physician first needs to understand and correctly recognize patient's feelings. A relation between cognitive and affective empathy has occasionally been shown in empirical research (Davis, 1983; Kim, Kaplowitz, & Johnston, 2004). Nevertheless, research from the nonmedical field has also found that cognitive and affective empathy does not always occur together (Davis, 1983; Irving & Dickson, 2004; Larson & Yao, 2005). Another argument for the independence of cognitive and affective empathy is the fact that when looking at brain activity during empathic episodes, cognitive and affective empathy happen in different parts of the brain.

In my studies I only found partial evidence for a positive relationship between cognitive and affective empathy. In Study 1 cognitive empathy measured as decoding skills was related to affective empathy (shared emotions and encoding skills). However, cognitive empathy, measured as nonverbal sensitivity, was not related to any measure of affective empathy. In Study 2 cognitive (perspective taking) and affective empathy (empathic concern) were not related, either. How can such inconsistent results on the relationship between cognitive and affective empathy be explained? One explanation for non-significant results could be physician age or experience. Different studies show that affective and cognitive empathy decline during the medical curriculum (Kerem, Fishman, & Josselson, 2001). Nevertheless, it is not clear whether they decline at the same rate or at the same moment in time. No study has ever looked at the question whether cognitive and affective empathy decline at the same speed and triggered by the same factors during the medical curriculum. For instance, maybe the medical students in the Study 2 sample were at a specific phase of age or working experience stage when cognitive and affective empathy diverge because of different decline rates.

Still, it seems logical that, before being able to feel with another person, one has to understand and recognize the other's feelings. Another reflection though, could be that the inverse argument is not mandatorily true: Just being good at taking the other's perspective does not necessarily imply the motivation to engage oneself in another's emotional experience.

But what could it be that makes good perspective takers engage in affective empathic processes? Other researchers have suggested including a moral or also called motivational component to the concept of empathy (Hojat et al., 2004; Newton et al., 2008). The motivational component of empathy is described as the physician’s internal motivation to empathize. This component might become relevant when looking at the interplay of the empathic components in my studies. In a qualitative study Salmon and colleagues (Stepien & Baernstein, 2006) showed that physicians’ motivational commitment to the patient and the role as a practitioner was more relevant for patients’ perception of the physicians’ empathy than physicians’ emotional engagement (which can be seen as a form of affective empathy) or overt emotional talk. Moreover, it could be that the motivational component of empathy affects physician’s affective empathy, so that a physician, who is not motivated to empathize with a patient, will not feel with this patient, either. However, to my knowledge the relation between cognitive, affective, and motivational components of empathy has not been tested empirically to date.

There is no consistent relationship between cognitive and affective empathy. Factors influencing this relationship might for example be antecedents of empathy (physician age or experience), or other empathic aspects such as a motivational component. Overall it seems, that affective empathy is not an indispensable component of the empathic process. As mentioned above, physician’s emotional engagement might be less relevant for patients’ perception of physicians’ empathic style (2011) and thus might not be required to engender empathic behavior, either. Moreover, in the context of surface acting, affective empathy might even be competing for resources with the behavioral component of empathy. Surface acting is described as a superficial display of positive emotions (here empathy), while actual feelings as a reaction to the other are being suppressed. When physicians in Study 1 displayed high amounts of verbal empathy, they might have done so rather because of a professional habit than a true understanding of patients’ feelings (cognitive empathy was not related to behavioral empathy) and as a consequence their affective engagement with patients was inhibited. To my knowledge, no other studies have tested the relation between physician affective empathy and empathic behavior.

10 Implication and future directions

Understanding the relationship between physician empathy and patient outcomes is vital because improving patient outcomes such as patient satisfaction or trust can lead to better patient adherence and consequently better patient health (Salmon et al., 2011). Also, analyzing several empathic components and their interrelation sheds light on the role of different components in the empathic process, and therefore yields information on which aspects should be addressed in communication skills trainings for physicians, for instance. This thesis contributes to a more thorough conceptual approach of clinical empathy and opens up different thoughts of ways to improve empathic communication for physicians and patients.

I have argued that the empathic process is not merely a uni-dimensional interplay of different empathic components. Rather, empathy can occur on two different levels (surface and deep) and with varying interactions of specific components. These levels of empathy might be triggered by specific antecedents of empathy, and have different consequences for physicians and patients.

Who profits from these insights and how? Physicians and patients can profit from this knowledge through communication skills training specifically addressing empathy. If we assume that surface acting has rather negative consequences for physicians (e.g., emotional exhaustion or stress), empathy trainings should focus not only on teaching empathic behavior but also other empathic abilities, such as physicians' perspective taking ability and management of emotional empathic reactions, in order to foster the experience of deep empathy in physicians.

As to training perspective taking or emotional management, researchers have suggested using the narratives from physician-patient encounters in order to enhance physicians' ability to reflect on themselves and others and to foster responsible emotional engagement with others (DiMatteo et al., 1986; Stewart, 1995; Thom, 2001). Furthermore, courses on mindfulness might help physicians to deliver authentic empathic health care and reduce work stress and risks of burnout (Novack, Epstein, & Paulsen, 1999). However, because emotional self-awareness alone seems to be an obstructive component of mindfulness, rather other aspects of mindfulness such as awareness without judgment or acceptance of all experience as something that passes could be the focus of mindfulness trainings.

Trainings comprising several facets of empathy might have benefits for patients, too. Training empathic behavior such as eliciting and counseling psychosocial and lifestyle topics could increase life expectancy for older patient, for example. Life expectancy in older patients is higher when more time is dedicated to leisure time activities such as meeting with friends, sports, or further education (Teherani, Hauer, & O'Sullivan, 2008; Wear & Varley, 2008).

Other trainings might address the role and importance of different antecedents of empathy and raise physicians' awareness of such factors. Only physicians who have sufficient knowledge of disparities in health care for black patients or patients from low education and income classes can be alert to their own thoughts, feelings, and behavior toward such patients (Klumb & Maier, 2007). As another example, patient health status influences physicians' empathy. As a consequence, physicians might learn to prevent disadvantages in health care for sicker patients by suggesting additional support such as e-health programs. E-health programs such as specific websites for patients suffering from chronic diseases foster patient activation and disease-management (Cooper et al., 2003; Street et al., 2007).

Finally, all trainings must include different perspectives and adequate feedback or exchange. It is vital to take physicians' and patients' perspective, and ideally that of observer, into account. The effectiveness of trainings of empathy can only be truthfully tested when looked at from different perspectives, because empathy occurs between interaction partners and not within one person alone.

Furthermore, future research can be inspired by this thesis. For example, when addressing the question of which role different components might have in the empathic process, researchers might want to look at the effect of cognitive, affective and behavioral empathy on patient outcomes using measures from three different perspectives (physician, patient, observer) for each empathic component. In order to do this the same questionnaire could be applied to physicians, patients, and observer in order to facilitate comparison. Participants could be physicians or medical students with real or standardized patients. However, the use of virtual reality to assess empathy might not be suitable to detect small effects because physicians' emotional engagement with virtual patients might be rather low. Maybe in order to perform experimental research real person standardized patients might be a more powerful emotional stimulus.

Studies involving measures from several perspectives, for each empathic component measured, would reveal information on effects within a specific perspective and across perspectives, especially when using multi-level analysis. Also, it would allow identifying the perspective or component, which is most relevant for specific patient outcomes. Undoubtedly, measuring different empathic components from different perspectives poses a considerable methodological challenge not even speaking of the consumption of time and effort of such an undertaking. Depending on the research question it might also be possible to concentrate on one or two components and perspectives, while being aware of the limitations to this methodological approach. For example, when looking at the importance of affective empathy, in a first step, affective and behavioral empathy could be measured from the physician’s and the patient’s perspective. According to the findings of this thesis I would hypothesize that affective empathy is not relevant for empathic behavior or patient outcomes from the physician’s perspective but might have an impact on patient’s perception of physician authenticity and satisfaction with the physician-patient relationship.

Also, more studies should investigate the effect of surface and deep empathy on patient and physician outcomes. Research on emotional labor might serve as a source of ideas as to how surface and deep empathy could be measured. Measures of emotional labor from the setting of organizational psychology can be easily applied to the medical profession (Zammuner & Galli, 2005). Measuring emotional labor, empathic components, and patient outcomes provides valuable information on which components are activated during surface and deep empathy and how patient outcomes are affected by the different empathic levels. To do this, patients and physicians could be videotaped during real consultations. Physician empathy (cognitive, affective or motivational, and behavioral) could be measured from physicians’, patients’, and independent observers’ perspective. I would expect that surface acting is expressed by (inadequate) behavioral empathy but no or reduced intrapersonal empathy. Also, surface acting should be perceived negatively by patients, and therefore lead to negative patient outcomes (less trust or satisfaction).

Furthermore, like cognitive and affective empathy, surface and deep levels of empathy might be represented by different areas in the brain. This could be tested with neuropsychological studies using fMRI for example. Participants could watch videos of medical consultations as stimulus material for different empathic levels. Surface and deep empathy could be measured with emotional labor questionnaires and standardized empathy measures.

11 Figure directory

Figure 1. The Process model of clinical empathy (Larson&Yao, 1995; Davis, 1996). Single direction arrows indicate the influence of one component on another. Double direction arrows indicate interactions (i.e., feedback-effects) between two components. *19*

Figure 2. Virtual Patients in medical examination room. Avatar 1 and 2. .... *57*

Figure 3. Relations between empathic components as found in Study 1 and 2. Ovals with “+” indicate positive correlations, ovals with “-“ negative correlations. *69*

Figure 4. Relationships found between antecedents and intra- and interpersonal processes in Study 1 and 2. Full arrows indicate direct relationships. Dashed arrows indicate the influence of one variable on the relationship between two other variables........ *75*

12 Table directory

Table 1 Binary correlations between the empathy variables 43

Table 2 Binary correlations between the outcome variables 44

Table 3 Relations between dependent variables and physician and patient characteristics 46

Table 4 Associations between different aspects of empathy and patient outcomes, and patient general health 47

Table 5 Communication example for the virtual medical interview (low grade malignant lymphoma) 56

Table 6 Correlations between medical students' emotional self-awareness, empathy, and verbal and nonverbal flexibility between patient communication styles 62

Table 7 Correlations between emotional self-awareness and empathy for male and female medical students 63

13 References

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14 Appendix

A) Demanding and neutral patient script with low malignant lymphoma

Instructions for medical student/Part of the consultation	Demanding patient	Neutral patient
1. Opening		
Say welcome and introduce yourself. Press key 1.		
	Hello. That really took a while! I've been waiting for an hour now.	Hello. Thank you for this appointment. I had to wait a bit but that's how it is.
Ask the patient to take a seat. Ask for the reason of the visit. Press key 2		
	Well, listen, I've been feeling constantly tired lately and that's really very tough for me. At night I wake up, because I'm sweating, like crazy! I really can't take this any longer, you need to do something, so I can get back to normal again!	Well, I've been feeling constantly tired lately and that's very unpleasant for me. At night I wake up, because I'm sweating a lot. That's rather unusual for me so I though I should better go and see a doctor.
2. Data gathering		
You want to know whether the patient has other complaints. Press key 3	Yes, my stomach hurts – every day. That really bothers me. Because of that I I've been eating very little. And I lost weight, too – just look at me! Sometimes I have a fever for several days, especially when I'm so terribly tired and stressed out. (Pause) Just give me some painkiller and we can keep this short and simple.	Yes, my stomach hurts – every day. That really bothers me. Because of that I I've been eating very little. And I lost weight, too – I guess I wouldn't need that, though. Sometimes I have a fever for several days, especially when I'm very tired and stressed out. (Pause) Twice, I took paracetamol when I had the fever.

Demanding and neutral patient script with low malignant lymphoma (continued)

Instructions for medical student/Part of the consultation	Demanding patient	Neutral patient

You want to know, whether you can talk about the fatigue first. Press key 4.	Yes, whatever.	Yes, sure.
You want to know how intense the symptom is. Press key 5.	Uh, I’m tired really often. Already in the morning, as if I hadn’t had any sleep at all. And don’t give me valerian – I can buy that myself – you have to prescribe something stronger.	Uh, I’m tired really often. Already in the morning, as if I hadn’t had any sleep at all. I often go and take a nap then after lunch for 20 minutes or so.
3. Patient education and counseling		
Respond to patient’s account. You need to know more about the nature of the fatigue symptoms. Press key 6.	My whole body feels like a piece of lead. Even after getting up. I feel nerveless and weak. Believe me, you can’t imagine. My everyday life is hell; otherwise I surely wouldn’t go and see a doctor.	My whole body feels like a piece of lead. Even after getting up. I feel nerveless and weak. It’s not easy for me to get my daily work done.
Respond to patient’s account. You would like to know more about the nature of the stomach pain. Press key 7.	My stomach hurts really badly. After every meal! As if someone kicked me right into the stomach. It’s like a cramp.	My stomach hurts really badly. After every meal! A very heavy pressure on the stomach. It’s like a cramp.
You would like to know about the consequences the symptoms have in the patient’s everyday life. Press key 8.	Well, if my stomach hurts that bad and I’m feverish, I obviously can’t go to work. What are you thinking? And there are so many important things waiting to be done at work! Oh, and I can’t do any sports, either.	Well, if my stomach hurts that bad and I’m feverish, I can’t go to work. Most of the time I stay at home on such days. And there are so many important things waiting to be done at work! Oh, and I can’t do any sports, either.
Resume the patient’s complaints in order to show you got everything right. Mention a common reason for such symptoms. Suggest a complete blood count. Press key 9.	Look, it’s you who’s got to know what to do. You’re the doctor. I don’t mind, as long as it doesn’t take long and you prescribe me something to make me feel better.	If that’s what you’re suggesting, I’m ok with that. I just hope the results will be fine.

Demanding and neutral patient script with low malignant lymphoma (continued)

Instructions for medical student/Part of the consultation	Demanding patient	Neutral patient
You think the weight loss is critical. You have an assumption	I really don’t care about your further testing options. You’re the	I’m actually having a hard time deciding between my options and it

and tell the patient about your diagnose. Suggest further diagnostic tests and explain these briefly. Press key 11.	expert. So you tell me what's best. I expect you to take the best decision for me. I really don't have tome for discussion. I just need something to make me feel better.	seems as if I might have something more serious than I originally thought. I really trust you. What option would you recommend?
Tell the patient which option you would take. Give reasons for your decision. Press key 12.	Whatever. I'm sure we both know that in the end it's you who's responsible for my treatment.	That sounds all right to me. I hope this is the right way and I'll feel better soon.
Reassure the patient about your decision. Explain the possible therapy. Ask for patient's understanding. Press key 13.	Of course I got it. I'm not a doctor but I'm not stupid either.	Yes , I think I got everything right. I feel reassured now that you explained everything in detail.
4. Closing		
Ask whether the patient had further questions or issues. Press key 14.	No, I really have to go to the office now.	No, I don't have other questions. Thank you.
Say good-bye. Press key 15.	Bye.	Good-bye. Thanks for your help, doctor.

Note: Due to the virtual nature of the interview, there was no physical examination phase.

B) Demanding and neutral patient script with unexplained symptoms

Instructions for medical student/Part of the consultation	Demanding patient	Neutral patient
1. Opening		
Say welcome and introduce yourself. Press key 1.		
	Hello. That really took a while! I've been waiting for an hour now.	Hello. Thank you for this appointment. I had to wait a bit but that's how it is.
Ask the patient to take a seat. Ask for the reason of the visit. Press key 2		
	Well, listen, I've been feeling constantly dizzy lately and that's really very tough for me. When I do sports everything's turning and I'm totally out of breath. I really can't take this any longer, you need to do something, so I can get back to normal again!	Well, I've been feeling constantly dizzy lately and that's very unpleasant for me. When I do sports everything's turning and I'm totally out of breath. That's rather unusual for me so I though I should better go and see a doctor.
2. Data gathering		
You want to know whether the patient has other complaints. Press key 3	Yes, I'm sweating a lot – every night. That really bothers me. And quite often I feel nauseous. Because of that I I've been eating very little. And I lost weight, too – just look at me! I'm completely stressed out. (Pause) Just give me some sleeping pills and we can keep this short and simple.	Yes, I'm sweating a lot – every night. That really bothers me. And quite often I feel nauseous. Because of that I I've been eating very little. And I lost weight, too – I guess I wouldn't need that, though. I'm really stressed out. (Pause) Twice, I took valerian drops when I couldn't sleep.
You want to know, whether you can talk about the dizziness first. Press key 4.	Yes, whatever.	Yes, sure.
You want to know how intense the symptom is. Press key 5.	Uh, I feel dizzy really often. Already in the morning, as if I hadn't had any sleep at all. During the day I have a hard time	Uh, I feel dizzy really often. Already in the morning, as if I hadn't had any sleep at all. During the day I have a hard time

	concentrating. And don't give me valerian – I can buy that myself – you have to prescribe something stronger.	concentrating. I often go and take a nap then after lunch for 20 minutes or so.
3. Patient education and counseling		
Respond to patient's account. You need to know more about the nature of the dizziness symptoms. Press key 6.	Mostly I feel dizzy when I'm out of breath, as if I had a heavy weight on my chest. Often I get a horrible headache on top of that. Believe me, you can't imagine. My everyday life is hell; otherwise I surely wouldn't go and see a doctor.	Mostly I feel dizzy when I'm out of breath, as if I had a heavy weight on my chest. Often I get a strong headache on top of that. It's not easy for me to get my daily work done.
Respond to patient's account. You would like to know more about the nature of the nausea. Press key 7.	I have these feelings of nausea after every meal. Very unpleasant. I feel like vomiting all the time. Disgusting, unbearable!	I have these feelings of nausea after every meal. Very unpleasant. I actually feel like vomiting. It's quite hard to bear up against it.
You would like to know about the consequences the symptoms have in the patient's everyday life. Press key 8.	Well, if I can't breath and I have these terrible headaches, I obviously can't go to work. What are you thinking? And there are so many important things waiting to be done at work! Oh, and I can't do any sports, either.	Well, if I can't breath and I have these strong headaches, I can't go to work. Most of the time I stay at home on such days. And there are so many important things waiting to be done at work! Oh, and I can't do any sports, either.
Resume the patient's complaints in order to show you got everything right. Mention a common reason for such symptoms. Suggest a blood test and an ECG recording. Press key 9.	Look, it's you who's got to know what to do. You're the doctor. I don't mind, as long as it doesn't take long and you prescribe me something to make me feel better.	If that's what you're suggesting, I'm ok with that. I just hope the results will be fine.
The doctor's assistant will take some blood after the consultation. Address the loss of body's capacity. You would like to know how intense the patient experiences the symptoms. Press key 10.	During the last six months I've had difficulties to concentrate on something. Also, I stopped the swim training because I got extremely slow. Don't you realize my whole life is affected?	During the last six months I've had difficulties to concentrate on something. Also, I stopped the swim training because I got very slow. What do you think?
You think the loss of body's capacity is critical. You have an assumption and tell the patient about your diagnose. Suggest	I really don't care about your further testing options. You're the expert. So you tell me what's best. I expect you to take the best	I'm actually having a hard time deciding between my options and it seems as if I might have something more serious than I originally

further diagnostic tests and explain these briefly. Press key 11.	decision for me. I really don't have tome for discussion. I just need something to make me feel better.	thought. I really trust you. What option would you recommend?
Tell the patient which option you would take. Give reasons for your decision. Press key 12.	Whatever. I'm sure we both know that in the end it's you who's responsible for my treatment.	That sounds all right to me. I hope this is the right way and I'll feel better soon.
Reassure the patient about your decision. Explain the possible therapy. Ask for patient's understanding. Press key 13.	Of course I got it. I'm not a doctor but I'm not stupid either.	Yes, I think I got everything right. I feel reassured now that you explained everything in detail.
4. Closing		
Ask whether the patient had further questions or issues. Press key 14.	No, I really have to go to the office now.	No, I don't have other questions. Thank you.
Say good-bye. Press key 15.	Bye.	Good-bye. Thanks for your help, doctor.

Note: Due to the virtual nature of the interview, there was no physical examination phase.